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- (71) Applicant (for all designated States except US): SYN-GENTA PARTICIPATIONS AG [CH/CH]; Schwarzwaldallee 215, CH-4058 Basel (CH).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): RÜEGG, Willy, T. [CH/CH]; Felmetweg 6, CH-5073 Gipf-Oberfrick (CH).

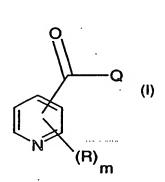
- (74) Agent: BASTIAN, Werner; Syngenta Participations AG, Intellectual Property, P.O. Box, CH-4002 Basel (CH).
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(54) Title: HERBICIDAL COMPOSITION



(57) Abstract: A herbicidal composition that, in addition to comprising customary inert formulation adjuvants, comprises: a) a compound of formula (I), wherein the substituents are as defined in claim 1; and b) a synergistically effective amount of one or more compounds of formulae (2.1 to 2.51). The compositions according to the invention may also comprise a safener.

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Herbicidal composition

The present invention relates to a novel herbicidal composition comprising a herbicidal active ingredient combination that is suitable for the selective control of weeds in crops of useful plants, for example in maize crops. The invention relates also to a method of controlling weeds in crops of useful plants, and to the use of the novel composition for that purpose.

The compounds of formula I

wherein the definitions of the substituents are given hereinbelow have herbicidal activity.

Surprisingly, it has now been shown that a combination of variable amounts of active ingredients, that is, of an active ingredient of formula I with one or more of the active ingredients of formulae 2.1 to 2.51 listed below, which are known and some of which are also commercially available, exhibits a synergistic action that is capable of controlling, both pre-emergence and post-emergence, the majority of weeds occurring especially in crops of useful plants.

There is therefore proposed in accordance with the present invention a novel synergistic composition for selective weed control that, in addition to customary inert formulation adjuvants, comprises as active ingredient a mixture of

a) a herbicidally effective amount of a compound of formula I

wherein each R is independently hydrogen, C1-C6alkyl, C2-C6alkenyl, C2-C6haloalkenyl, C_2 - C_6 alkynyl, C_2 - C_6 haloalkynyl, C_3 - C_6 cycloalkyl, C_1 - C_6 alkoxy, C_1 - C_6 haloalkoxy, C_1 -C₆alkylthio, C₁-C₆alkylsulfinyl, C₁-C₆alkylsulfonyl, C₁-C₆haloalkyl, C₁-C₆haloalkylthio, C₁- C_6 haloalkylsulfinyl, C_1 - C_6 alkylsulfonyl, C_1 - C_6 alkylsul C_6 alkylamino, di(C_1 - C_6 alkyl)amino, C_1 - C_6 alkylaminosulfonyl, di(C_1 - C_6 alkyl)aminosulfonyl, -N(R₁)-S-R₂, -N(R₃)-SO-R₄, -N(R₅)-SO₂-R₆, nitro, cyano, halogen, hydroxy, amino, benzylthio, benzylsulfinyl, benzylsulfonyl, phenyl, phenoxy, phenylthio, phenylsulfinyl or phenylsulfonyl; wherein the phenyl group may itself be mono-, di- or tri-substituted by C1-C6alkyl, C1-C6haloalkyl, C_3 - C_6 alkenyl, C_3 - C_6 haloalkenyl, C_3 - C_6 alkynyl, C_3 - C_6 haloalkynyl, C_1 - C_6 alkoxy, C_1 - C_6 haloalkoxy, C_3 - C_6 alkenyloxy, C_3 - C_6 alkynyloxy, mercapto, C_1 - C_6 alkylthio, C_1 - C_6 haloalkylthio, C_3 - C_6 alkenylthio, C_3 - C_6 haloalkenylthio, C_3 - C_6 alkynylthio, C_2 - C_5 alkoxyalkylthio, C_3 - C_5 acetylalkylthio, C_3 - C_6 alkoxycarbonylalkylthio, C_2 - C_4 cyanoalkylthio, C_1 - C_6 alkylsulfinyl, C_1 - C_6 haloalkylsulfinyl, C_1 - C_6 alkylsulfonyl, C_1 - C_6 haloalkylsulfonyl, aminosulfonyl, C₁-C₂alkylaminosulfonyl, C₂-C₄dialkylaminosulfonyl, C₁-C₃alkylene-R₄₅, NR₄₆R₄₇, halogen, cyano, nitro, phenyl or by benzylthio, wherein the latter phenyl and benzylthio groups may themselves be substituted on the phenyl ring by C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, halogen, cyano or by nitro; or each R is independently a monocyclic or fused bicyclic ring system having from 5 to 10 members, which may be aromatic or partially saturated and may contain from 1 to 4 hetero atoms selected from nitrogen, oxygen and sulfur; wherein the ring system either is bound directly to the pyridine ring or is bound to the pyridine ring via a C1-C4alkylene group, and each ring system may not contain more than two oxygen atoms and may not contain more than two sulfur atoms, and the ring system may itself be mono-, di- or tri-substituted by C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, C_3 - C_6 alkenyl, C_3 - C_6 haloalkenyl, C_3 - C_6 alkynyl, C_3 - C_6 haloalkynyl, C_1 - C_6 alkoxy, C_1 - C_6 haloalkoxy, C_3 - C_6 alkenyloxy, C_3 - C_6 alkynyloxy, mercapto, C_1 - C_6 alkylthio, C_1 - C_6 haloalkylthio, C_3 - C_6 alkenylthio, C_3 - C_6 haloalkenylthio, C_3 - C_6 alkynylthio, C_2 - C_5 alkoxyalkylthio, C_3 - C_5 acetylalkylthio, C_3 - C_6 alkoxycarbonylalkylthio, C_2 - C_4 cyanoalkylthio,

 C_1 - C_6 alkylsulfinyl, C_1 - C_6 haloalkylsulfinyl, C_1 - C_6 alkylsulfonyl, C_1 - C_6 haloalkylsulfonyl, aminosulfonyl, C_1 - C_2 alkylaminosulfonyl, C_2 - C_4 dialkylaminosulfonyl, C_1 - C_3 alkylene- R_7 , NR_8R_9 , halogen, cyano, nitro, phenyl or by benzylthio, wherein phenyl and benzylthio may themselves be substituted on the phenyl ring by C_1 - C_3 alkyl, C_1 - C_3 haloalkyl, C_1 - C_3 alkoxy, C_1 - C_3 haloalkoxy, halogen, cyano or by nitro, and wherein the substituents on the nitrogen in the heterocyclic ring are other than halogen; or

each R is independently C_1 - C_4 alkoxy- C_1 - C_4 alkyl or C_1 - C_4 alkoxy- C_1 - C_4 alkoxy- C_1 - C_4 alkyl; m is 1, 2, 3 or 4;

 R_1 , R_3 and R_5 are each independently of the others hydrogen or C_1 - C_6 alkyl; R_2 is $NR_{10}R_{11}$, C_1 - C_6 alkoxy, C_1 - C_6 haloalkoxy, C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, C_3 - C_6 alkenyl, C_3 - C_6 haloalkynyl, C_3 - C_6 cycloalkyl or phenyl, wherein phenyl may itself be substituted by C_1 - C_3 alkyl, C_1 - C_3 haloalkyl, C_1 - C_3 alkoxy, C_1 - C_3 haloalkoxy, halogen, cyano or by nitro;

R₄ is NR₁₂R₁₃, C₁-C₆alkoxy, C₁-C₆haloalkoxy, C₁-C₆alkyl, C₁-C₆haloalkyl, C₃-C₆alkenyl, C₃-C₆haloalkynyl, C₃-C₆cycloalkyl or phenyl, wherein phenyl may itself be substituted by C₁-C₃alkyl, C₁-C₃haloalkyl, C[‡]-C₃alkoxy, C₁-C₃haloalkoxy, halogen, cyano or by nitro;

 R_6 is $NR_{14}R_{15}$, C_1 - C_6 alkoxy, C_1 - C_6 haloalkoxy, C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, C_3 - C_6 alkenyl, C_3 - C_6 haloalkynyl, C_3 - C_6 cycloalkyl or phenyl, wherein phenyl may itself be substituted by C_1 - C_3 alkyl, C_1 - C_3 haloalkyl, C_1 - C_3 alkoxy, C_1 - C_3 haloalkoxy, halogen, cyano or by nitro;

 R_7 and R_{45} are each independently of the other C_1 - C_3 alkoxy, C_2 - C_4 alkoxycarbonyl, C_1 - C_3 -alkylthio, C_1 - C_3 alkylsulfinyl, C_1 - C_3 alkylsulfonyl or phenyl, wherein phenyl may itself be substituted by C_1 - C_3 alkyl, C_1 - C_3 haloalkyl, C_1 - C_3 alkoxy, C_1 - C_3 haloalkoxy, halogen, cyano or by nitro;

 R_8 , R_{10} , R_{12} , R_{14} and R_{46} are each independently of the others hydrogen or C_1 - C_6 alkyl; R_9 , R_{11} , R_{13} , R_{15} and R_{47} are each independently of the others C_1 - C_6 alkyl or C_1 - C_6 alkoxy; Q is the group Q_1

wherein R₁₆, R₁₇, R₁₈ and R₁₉ are each independently of the others hydrogen, hydroxy. C₁-C₄alkyl, C₂-C₆alkenyl, C₂-C₆alkynyl, C₁-C₄alkoxycarbonyl, C₁-C₆alkylthio, C₁-C6alkylsulfinyl, C1-C6alkylsulfonyl, C1-C4alkyl-NHS(O)2, C1-C4haloalkyl, -NH-C1-C4alkyl, -N(C1-C4alkyl)2, C1-C6alkoxy, cyano, nitro, halogen, or phenyl which may itself be substituted by C₁-C₄alkyl, C₁-C₄haloalkyl, C₁-C₄alkoxy, C₁-C₄alkylcarbonyl, C₁-C₄alkylcarbonyl C4alkoxycarbonyl, amino, C1-C4alkylamino, di(C1-C4alkyl)amino, C1-C6alkylthio, C1- C_6 alkylsulfinyl, C_1 - C_6 alkylsulfonyl, C_1 - C_4 alkyl- $S(O)_2O$, C_1 - C_4 haloalkylthio, C_1 -C4haloalkylsulfinyl, C1-C4haloalkylsulfonyl, C1-C4haloalkyl-S(O)2O, C1-C4alkyl-S(O)2NH, C1-C₄alkyl-S(O)₂N(C₁-C₄alkyl), halogen, nitro, COOH or by cyano; or two adjacent substituents out of R₁₆, R₁₇, R₁₈ and R₁₉ form a C₂-C₆alkylene bridge; R₂₀ is hydroxy, O^TM⁺, halogen, C₁-C₁₂alkoxy, C₁-C₁₂alkylcarbonyloxy, C₂-C₄alkenylcarbonyloxy, C_3 - C_6 cycloalkylcarbonyloxy, C_1 - C_{12} alkoxycarbonyloxy, C_1 - C_{12} alkylcarbonyloxy, $R_{21}R_{22}N-C(O)O$, C_1-C_{12} alkylthio, C_1-C_{12} alkylsulfinyl, C_1-C_{12} alkylsulfonyl, C_1-C_4 haloalkylthio, C_1 - C_4 haloalkylsulfinyl, C_2 - C_{12} alkenylthio, C_2 - C_{12} alkenylsulfinyl, C_2 - C_{12} alkenylsulfonyl, C2-C12haloalkenylthio, C2-C12haloalkenylsulfinyl, C2-C12haloalkenylsulfonyl, C_2 - C_{12} alkynylthio, C_2 - C_{12} alkynylsulfinyl, C_2 - C_{12} alkynylsulfonyl, C_1 - C_4 alkyl- $S(O)_2O$. phenyl-S(O)₂O, $(C_1-C_4alkoxy)_2P(O)O$, $C_1-C_4alkoxy)P(O)O$, $H(C_1-C_4alkoxy)P(O)O$, C₁-C₁₂-alkyl-S(CO)O, benzyloxy, phenoxy, phenylthio, phenylsulfinyl or phenylsulfonyl, wherein the phenyl group may itself be substituted by C₁-C₄alkyl, C₁-C₄haloalkyl, C₁-C4alkoxy, C1-C4alkylcarbonyl, C1-C4alkylcarbonyl, C1-C4alkylamino, di(C1-C4alkoxycarbonyl, C1-C4alkylamino, di(C1-C4alkoxycarbonyl, C1-C4alkylamino, di(C1-C4alkoxycarbonyl, C1-C4alkylamino, di(C1-C4alkoxycarbonyl, C1-C4alkylamino, di(C1-C4alkylamino, di(C1-C4alkylam $C_4 alkyl) amino, \ C_1 - C_4 alkylthio, \ C_1 - C_4 alkylsulfinyl, \ C_1 - C_4 alkylsulfonyl, \ C_1 - C_4 alkyl-S(O)_2O, \ C_1 - C_4 alkylsulfonyl, \ C_2 - C_4 alkylsulfonyl, \ C_3 - C_4 alkylsulfonyl, \ C_4 - C_5 - C_6 alkylsulfonyl, \ C_6 - C_6 -$ $C_4 haloalkylthio,\ C_1-C_4 haloalkylsulfinyl,\ C_1-C_4 haloalkylsulfonyl,\ C_1-C_4 haloalkyl-S(O)_2O,\ C_1-C_4 haloalkylsulfonyl,\ C_2-C_4 haloalkylsulfonyl,\ C_3-C_4 haloalkylsulfonyl,\ C_3-C_4$ C4alkyl-S(O)2NH, C1-C4alkyl-S(O)2N(C1-C4alkyl), halogen, nitro or by cyano; and R₂₁ and R₂₂ are each independently of the other hydrogen or C₁-C₄alkyl; or is the group Q2

wherein R₂₃ is hydroxy, O'M⁺, halogen, C₁-C₁₂alkoxy, C₁-C₁₂alkylcarbonyloxy, C₂-C₄-alkenylcarbonyloxy, C₃-C₆cycloalkylcarbonyloxy, C₁-C₁₂alkoxycarbonyloxy, C₁-C₁₂alkylcarbonyloxy, C₁-C₁₂alkylcarbonyloxy, R₂₄R₂₅N-C(O)O, C₁-C₁₂alkylthio, C₁-C₁₂alkylsulfinyl, C₁-C₁₂alkylsulfinyl, C₁-C₁₂alkylsulfinyl, C₂-C₁₂alkenylthio, C₂-C₁₂alkenylsulfinyl, C₂-C₁₂alkenylsulfinyl, C₂-C₁₂haloalkenylsulfinyl, C₂-C₁₂-C₁₂-alkenylsulfinyl, C₂-C₁₂-C₁₂-alkenylsulfinyl, C₂-C₁₂-C₁₂-alkenylsulfinyl, C₂-C₁₂-C₁₂-alkenylsulfinyl, C₂-C₁₂-C₁₂-alkenylsulfinyl, C₂-C₁₂-C₁₂-alkenylsulfinyl, C₂-C₁₂-C₁₂-C₁₂-alkenylsulfinyl, C₂-C₁₂

haloalkenylsulfonyl, C_2 - C_{12} alkynylthio, C_2 - C_{12} alkynylsulfinyl, C_2 - C_{12} alkynylsulfonyl, C_1 - C_4 alkyl- $S(O)_2O$, phenyl- $S(O)_2O$, (C_1 - C_4 alkoxy) $_2$ P(O)O, C_1 - C_4 alkyl(C_1 - C_4 alkoxy)P(O)O, H(C_1 - C_4 alkoxy)P(O)O, C_1 - C_1 2-alkyl-S(CO)O, benzyloxy, phenoxy, phenylthio, phenylsulfinyl or phenylsulfonyl, wherein the phenyl group may itself be substituted by C_1 - C_4 alkyl, C_1 - C_4 alkoxy, C_1 - C_4 alkoxy, C_1 - C_4 alkylcarbonyl, C_1 - C_4 alkylamino, di(C_1 - C_4 alkyl)amino, C_1 - C_4 alkylthio, C_1 - C_4 alkylsulfinyl, C_1 - C_4 alkylsulfonyl, C_1 - C_4 alkyl- $S(O)_2O$, C_1 - C_4 haloalkylthio, C_1 - C_4 haloalkylsulfinyl, C_1 - C_4 haloalkylsulfonyl, C_1 - C_4 haloalkyl- $S(O)_2O$, C_1 - C_4 alkyl- C_1 - C_4 alkyl- C_1 - C_4 alkyl- C_1 - C_4 alkyl- C_1 - C_4 alkyl-

 R_{24} and R_{25} are each independently of the other hydrogen or C_1 - C_4 alkyl; and Y is oxygen, sulfur, a chemical bond or a C_1 - C_4 alkylene bridge; or is the group Q_3

wherein R_{44} , R_{37} , R_{38} and R_{39} are each independently of the others hydrogen, C_1 - C_6 alkyl, C_1 - C_6 alkyl, C_2 - C_6 alkenyl, C_2 - C_6 alkynyl, C_1 - C_6 alkoxycarbonyl, C_1 - C_6 alkylthio, C_1 - C_6 alkylsulfonyl, C_1 - C_6 alkyl-NHS(O)2, C_1 - C_6 alkylamino, di(C_1 - C_6 alkyl)amino, hydroxy, C_1 - C_6 alkoxy, C_3 - C_6 alkenyloxy, C_3 - C_6 alkynyloxy, hydroxy- C_1 - C_6 alkyl, C_1 - C_4 alkylsulfonyloxy- C_1 - C_6 alkyl, tosyloxy- C_1 - C_6 alkyl, halogen, cyano, nitro, phenyl, or phenyl substituted by C_1 - C_4 alkyl, C_1 - C_4 alkoxy, C_1 - C_4 alkoxy, C_1 - C_4 alkoxy, C_1 - C_4 alkylcarbonyl, C_1 - C_4 alkoxycarbonyl, amino, C_1 - C_4 alkylamino, di(C_1 - C_4 alkyl)amino, C_1 - C_6 alkylsulfinyl, C_1 - C_6 alkylsulfonyl, C_1 - C_4 alkyl-S(O)2O, C_1 - C_6 haloalkylthio, C_1 - C_6 haloalkylsulfinyl, C_1 - C_6 haloalkylsulfonyl, C_1 - C_6 alkylsulfonyl, C_1 - C_6 alkylsulfonyl, C_1 - C_6 alkylsulfonyl, C_1 - C_6 alkylsulfonyl-N(C_1 - C_4 alkyl), halogen, nitro, COOH or by cyano; or adjacent C_4 and C_4 and C_6 and C_6 alkylene;

W is oxygen, sulfur, sulfinyl, sulfonyl, -CR₄₁R₄₂-, -C(O)- or -NR₄₃-; R₄₁ is hydrogen, C₁-C₄alkyl, C₁-C₄haloalkyl, C₁-C₄alkoxy-C₁-C₄alkyl, C₁-C₄alkylthio-C₁-C₄alkyl, C₁-C₄alkylcarbonyloxy-C₁-C₄alkyl, C₁-C₄alkylsulfonyloxy-C₁-C₄alkyl, tosyloxy-C₁-C₄alkyl, di(C₁-C₃alkoxyalkyl)methyl, di(C₁-C₃alkylthioalkyl)methyl, (C₁-C₃alkoxyalkyl)-(C₁-C₃alkylthioalkyl)methyl, C₃-C₅oxacycloalkyl, C₃-C₅thiacycloalkyl, C₃-C₄dioxacycloalkyl, C₃-C₄dioxacycloalkyl, C₃-C₅thiacycloalkyl, C₃-C₅thiacycloalkyl, C₃-C₄dioxacycloalkyl, C₃-C₅thiacycloalkyl, C₃-C₅thiacycloalkyl, C₃-C₄dioxacycloalkyl, C₃-C₅thiacycloalkyl, C₃-C₄dioxacycloalkyl, C₃-C₅thiacycloalkyl, C₃-C₅thiacycloalkyl,

or is the group Q4

 C_4 dithiacycloalkyl, C_3 - C_4 oxathiacycloalkyl, formyl, C_1 - C_4 alkoxycarbonyl, or phenyl which may itself be substituted by C_1 - C_4 alkyl, C_1 - C_4 haloalkyl, C_1 - C_4 alkoxy, C_1 - C_4 alkoxy, C_1 - C_4 alkylcarbonyl, C_1 - C_4 alkoxycarbonyl, amino, C_1 - C_4 alkylamino, di(C_1 - C_4 alkyl)amino, C_1 - C_4 alkylthio, C_1 - C_4 alkylsulfinyl, C_1 - C_4 alkylsulfinyl, C_1 - C_4 alkylsulfonyl, C_1 - C_4 alkylsulfinyl, C_1 - C_4 haloalkylsulfinyl, C_1 - C_4 haloalkylsulfinyl, C_1 - C_4 haloalkylsulfinyl-N(C_1 - C_4 alkyl), C_1 - C_6 alkylsulfinyl-N(C_1 - C_4 alkyl), C_1 - C_6 alkylsulfinyl-N(C_1 - C_4 alkyl), C_1 - C_6 alkylsulfonyl-N(C_1 - C_4 alkyl), halogen, nitro, COOH or by cyano; or R_{42} together with R_{39} is C_1 - C_6 alkylene; R_{42} is hydrogen, C_1 - C_4 alkyl or C_1 - C_4 haloalkyl;

 R_{40} is hydroxy, $O^{-}M^{+}$, halogen, C_1-C_{12} alkoxy, C_1-C_{12} alkylcarbonyloxy, C_2-C_4 alkenylcarbonyloxy, C₃-C₆cycloaikylcarbonyloxy, C₁-C₁₂alkoxycarbonyloxy, C₁-C₁₂alkylcarbonyloxy, $R_{96}R_{97}N-C(O)O$, C_1-C_{12} alkylthio, C_1-C_{12} alkylsulfinyl, C_1-C_{12} alkylsulfonyl, C_1-C_4 haloalkylthio, C_1 - C_4 haloalkylsulfinyl, C_2 - C_{12} alkenylthio, C_2 - C_{12} alkenylsulfinyl, C_2 - C_{12} alkenylsulfonyl, C_2 - C_{12} haloalkenylthio, C_2 - C_{12} haloalkenylsulfonyl, C_2 - C_{12} haloalkenylsulfonyl, C_2 - C_{12} alkynylthio, C_2 - C_{12} alkynylsulfinyl, C_2 - C_{12} alkynylsulfonyl, C_1 - C_4 alkyl- $S(O)_2O_5$ phenyl-S(O)₂O, (C₁-C₄alkoxy)₂P(O)O, C₁-C₄alkyl(C₁-C₄alkoxy)P(O)O, H(C₁-C₄alkoxy)P(O)O, C₁-C₁₂-alkyl-S(CO)O, benzyloxy, phenoxy, phenylthio, phenylsulfinyl or phenylsulfonyl, wherein the phenyl group may itself be substituted by C1-C4alkyl, C1-C4haloalkyl, C1- C_4 alkoxy, C_1 - C_4 alkoxy, C_1 - C_4 alkylcarbonyl, C_1 - C_4 alkoxycarbonyl, C_1 - C_4 alkylamino, di(C_1 - $C_4 alkyl) amino, \ C_1 - C_4 alkylthio, \ C_1 - C_4 alkylsulfinyl, \ C_2 - C_4 alkylsulfinyl, \ C_3 - C_4 alkylsulfinyl, \ C_4 - C_5 - C_6 -$ C₄haloalkylthio, C₁-C₄haloalkylsulfinyl, C₁-C₄haloalkylsulfonyl, C₁-C₄haloalkyl-S(O)₂O, C₁-C₄alkyl-S(O)₂NH, C₁-C₄alkyl-S(O)₂N(C₁-C₄alkyl), halogen, nitro or by cyano; R₉₆ and R₉₇ are each independently of the other hydrogen or C₁-C₄alkyl; R₄₃ is hydrogen, C₁-C₄alkyl, C₁-C₄alkoxycarbonyl, or phenyl which may itself be substituted by C_1 - C_4 alkyl, C_1 - C_4 haloalkyl, C_1 - C_4 alkoxy, C_1 - C_4 haloalkoxy, C_1 - C_4 alkylcarbonyl, C_1 - C_4 alkoxycarbonyl, C_1 - C_4 alkylamino, di(C_1 - C_4 alkyl)amino, C_1 - C_4 alkylsulfinyl, C_1 - C_4 alkylsulfonyl, C_1 - C_4 alkyl- $S(O)_2O$, C_1 - C_4 haloalkylthio, C_1 - C_4 haloalkylsulfinyl, C_1 - $C_4 haloalkyl-S(O)_2O,\ C_1-C_4 alkyl-S(O)_2NH,\ C_1-C_4 alkyl-S(O)_2N(C_1-C_4 alkyl-S(O)_2NH)$ C4alkyl), halogen, nitro or by cyano;

wherein R₃₀ hydroxy, O⁻M⁺, halogen, C₁-C₁₂alkoxy, C₁-C₁₂alkylcarbonyloxy, C₂-C₄alkenylcarbonyloxy, C₃-C₆cycloalkylcarbonyloxy, C₁-C₁₂alkoxycarbonyloxy, C₁-C₁₂alkylcarbonyloxy, $R_{31}R_{32}N-C(O)O$, C_1-C_{12} alkylthio, C_1-C_{12} alkylsulfinyl, C_1-C_{12} alkylsulfonyl, C_1-C_4 haloalkylthio, C₁-C₄haloalkylsulfinyl, C₁-C₄haloalkylsulfonyl, C₂-C₁₂alkenylthio, C₂-C₁₂alkenylsulfinyl, C₂-C₁ alkenylsulfonyl, C₂-C₁₂haloalkenylthio, C₂-C₁₂haloalkenylsulfinyl, C₂-C₁₂haloalkenylsulfonyl, C₂-C₁₂alkynylthio, C₂-C₁₂alkynylsulfinyl, C₂-C₁₂alkynylsulfonyl, C₁-C₄alkyl-S(O)₂O, phenyl-S(O)₂O, $(C_1-C_4alkoxy)_2P(O)O$, $C_1-C_4alkyl(C_1-C_4alkoxy)P(O)O$, $H(C_1-C_4alkoxy)P(O)O$, C₁-C₁₂-alkyl-S(CO)O, benzyloxy, phenoxy, phenylthio, phenylsulfinyl or phenylsulfonyl, wherein the phenyl group may itself be substituted by C₁-C₄alkyl, C₁-C₄haloalkyl, C₁-C4alkoxy, C1-C4alkylamino, di(C1-C4alkoxycarbonyl, C1-C4alkylamino, di(C1-C4alkylamino, di(C1-C4al C4alkyl)amino, C1-C4alkylthio, C1-C4alkylsulfinyl, C1-C4alkylsulfonyl, C1-C4alkyl-S(O)2O, C1-C₄haloalkylthio, C₁-C₄haloalkylsulfinyl, C₁-C₄haloalkylsulfonyl, C₁-C₄haloalkyl-S(O)₂O, C₁-C₄alkyl-S(O)₂NH, C₁-C₄alkyl-S(O)₂N(C₁-C₄alkyl), halogen, nitro or by cyano; and R₃₁ and R₃₂ are each independently of the other hydrogen or C₁-C₄alkyl; R₃₃ and R₃₄ are each independently of the other hydrogen, hydroxy, C₁-C₄alkyl, C₂-C₆alkenyl, C₂-C₆alkynyl, C₁-C₄alkoxycarbonyl, C₁-C₆alkylthio, C₁-C₆alkylsulfinyl, C₁-C₆alkylsulfonyl, C_1 - C_4 alkyl-NHS(O)₂, C_1 - C_4 haloalkyl, -NH- C_1 - C_4 alkyl, -N(C_1 - C_4 alkyl)₂, C_1 - C_6 alkoxy, cyano, nitro, halogen, or phenyl which may itself be substituted by C₁-C₄alkyl, C₁-C₄haloalkyl, C₁-C₄alkoxy, C₁-C₄haloalkoxy, C₁-C₄alkylcarbonyl, C₁-C₄alkoxycarbonyl, amino, C₁-C₄alkylamino, $di(C_1-C_4alkyl)amino, C_1-C_6alkylthio, C_1-C_6alkylsulfinyl, C_1-C_6alkylsulfonyl, C_1-C_4alkyl-S(0)_2O$ C₁-C₄haloalkylthio, C₁-C₄haloalkylsulfinyl, C₁-C₄haloalkylsulfonyl, C₁-C₄haloalkyl-S(O)₂O, C₁-C₄alkyl-S(O)₂NH, C₁-C₄alkyl-S(O)₂N(C₁-C₄alkyl), halogen, nitro, COOH or by cyano; or R₃₃ and R₃₄ together form a C₂-C₆alkylene bridge; and R₃₅ is hydrogen, C₁-C₄alkyl, C₁-C₄alkoxycarbonyl, or phenyl which may itself be substituted by C₁-C₄alkyl, C₁-C₄haloalkyl, C₁-C₄alkoxy, C₁-C₄haloalkoxy, C₁-C₄alkylcarbonyl, C₁-C₄alkoxycarbonyl, amino, C₁-C₄alkylamino, di(C₁-C₄alkyl)amino, C₁-C₄alkylthio, C₁-C₄alkylsulfinyl, C₁-C₄alkylsulfonyl, C₁-C₄alkyl-S(O)₂O, C₁-C₄haloalkylthio, C₁-C4haloalkylsulfinyl, C1-C4haloalkylsulfonyl, C1-C4haloalkyl-S(O)2O, C1-C4alkyl-S(O)2NH, C1-C₄alkyl-S(O)₂N(C₁-C₄alkyl), halogen, nitro, COOH or by cyano; or is the group Q₅

wherein Z is sulfur, SO or SO₂;

 R_{01} is hydrogen, C_1 - C_8 alkyl, C_1 - C_8 alkyl substituted by halogen, C_1 - C_4 alkoxy, C_1 - C_4 alkylthio, C_1 - C_4 alkylsulfonyl, C_1 - C_4 alkylsulfinyl, hydroxy, cyano, nitro, -CHO, -CO $_2$ R $_{02}$, -COR $_{03}$, -COSR₀₄, -NR₀₅R₀₆, CONR₀₃₅R₀₃₇, or by phenyl which may itself be substituted by C₁-C4alkyl, C1-C6haloalkyl, C1-C4alkoxy, C1-C4haloalkoxy, C2-C6alkenyl, C3-C6alkynyl, C3-C₆alkenyloxy, C₃-C₆alkynyloxy, halogen, nitro, cyano, -COOH, COOC₁-C₄alkyl, COOphenyl, C_1 - C_4 alkoxy, phenoxy, (C_1 - C_4 alkoxy)- C_1 - C_4 alkyl, (C_1 - C_4 alkyl), (C C_4 alkylsulfinyl)- C_1 - C_4 alkyl, (C_1 - C_4 alkylsulfonyl)- C_1 - C_4 alkyl, NHSO₂- C_1 - C_4 alkyl, NHSO₂-phenyl, $N(C_1-C_6alkyl)SO_2-C_1-C_4alkyl, N(C_1-C_6alkyl)SO_2-phenyl, N(C_2-C_6alkenyl)SO_2-C_1-C_4alkyl, N(C_2-C_6alkyl)SO_2-C_1-C_4alkyl, N(C_2-C_6alkyl)SO_2-C_1-C_4alkyl, N(C_2-C_6alkyl)SO_2-C_1-C_4alkyl, N(C_2-C_6alkyl)SO_2-D_6alkyl)SO_2-D_6alkyl, N(C_2-C_6alkyl)SO_2-D_6alkyl, N(C_2-C_6alkyl)SO_2-D_6alkyl,$ C_6 alkenyl) SO_2 -phenyl, $N(C_3-C_6$ alkynyl) $SO_2-C_1-C_4$ alkyl, $N(C_3-C_6$ alkynyl) SO_2 -phenyl, $N(C_3-C_7-C_8)$ cycloalkyl) SO_2 - C_1 - C_4 alkyl, $N(C_3$ - C_7 cycloalkyl) SO_2 -phenyl, $N(phenyl)SO_2$ - C_1 - C_4 alkyl, N(phenyl)SO₂-phenyl, OSO₂-C₁-C₄alkyl, CONR₀₂₅R₀₂₆, OSO₂-C₁-C₄haloalkyl, OSO₂-phenyl, C_1 - C_4 alkylthio, C_1 - C_4 haloalkylthio, phenylthio, C_1 - C_4 alkylsulfonyl, C_1 - C_4 haloalkylsulfonyl, phenylsulfonyl, C_1 - C_4 alkylsulfinyl, C_1 - C_4 haloalkylsulfinyl, phenylsulfinyl, C_1 - C_4 alkylenephenyl or by -NR₀₁₅CO₂R₀₂₇; or R_{01} is C_2 - C_8 alkenyl or C_2 - C_8 alkenyl substituted by halogen, C_1 - C_4 alkoxy, C_1 - C_4 alkylthio, C_1 - C_4 alkylsulfonyl, C_1 - C_4 alkylsulfinyl, -CONR₀₃₂R₀₃₃, cyano, nitro, -CHO, -CO₂R₀₃₈, -COR₀₃₉, -COS-C₁-C₄alkyl, -NR₀₃₄R₀₃₅, or by phenyl which may itself be substituted by C₁-C₄alkyl, C_1 - C_6 haloalkyl, C_1 - C_4 alkoxy, C_1 - C_4 haloalkoxy, C_2 - C_6 alkenyl, C_3 - C_6 alkynyl, C_3 - C_6 alkenyloxy, C_3 - C_6 alkynyloxy, halogen, nitro, cyano, -COOH, COOC₁- C_4 alkyl, COOphenyl, C_1 - C_4 alkoxy, phenoxy, (C1-C4alkoxy)-C1-C4alkyl, (C1-C4alkylthio)-C1-C4alkyl, (C1-C4alkylsulfinyl)-C1-C4alkyl, alkyl, $N(C_1-C_6alkyl)SO_2$ -phenyl, $N(C_2-C_6alkenyl)SO_2-C_1-C_4alkyl$, $N(C_2-C_6alkenyl)SO_2$ -phenyl, $N(C_3-C_6alkynyl)\\SO_2-C_1-C_4alkyl,\ N(C_3-C_6alkynyl)\\SO_2-phenyl,\ N(C_3-C_7cycloalkyl)\\SO_2-C_1-C_4-cycloalkyl)\\SO_2-C_1-cyc$ alkyl, $N(C_3-C_7cycloalkyl)SO_2$ -phenyl, $N(phenyl)SO_2-C_1-C_4alkyl$, $N(phenyl)SO_2$ -phenyl, $OSO_2-C_1-C_4\\alkyl,\ CONR_{040}R_{041},\ OSO_2-C_1-C_4\\haloalkyl,\ OSO_2-phenyl,\ C_1-C_4\\alkylthio,\ C_1-C_4-C_4\\haloalkyl,\ OSO_3-phenyl,\ C_1-C_4\\haloalkyl,\ C_1-C_4$ haloalkytthio, phenylthio, C_1 - C_4 alkylsulfonyl, C_1 - C_4 haloalkylsulfonyl, phenylsulfonyl, C_1 - C_4 alkylsulfinyl, C₁-C₄haloalkylsulfinyl, phenylsulfinyl, C₁-C₄alkylenephenyl or by -NR₀₄₃CO₂R₀₄₂; or R_{01} is C_3 - C_6 alkynyl or C_3 - C_6 alkynyl substituted by halogen, C_1 - C_4 haloalkyl, cyano, -CO $_2$ R $_{044}$, or by phenyl which may itself be substituted by C $_1$ -C $_4$ alkyl, C $_1$ -C $_6$ haloalkyl, C $_1$ -C $_4$ alkoxy, C₁-C₄haloalkoxy, C₂-C₅alkenyl, C₃-C₅alkynyl, C₃-C₅alkenyloxy, C₃-C₅alkynyloxy, halogen, nitro, cyano, -COOH, COOC $_1$ -C $_4$ alkyl, COOphenyl, C $_1$ -C $_4$ alkoxy, phenoxy, (C $_1$ -C $_4$ -

alkoxy)- C_1 - C_4 alkyl, (C_1 - C_4 alkylthio)- C_1 - C_4 alkyl, (C_1 - C_4 alkylsulfinyl)- C_1 - C_4 alkyl, (C_1 - C_4 alkyl-

sulfonyl)-C₁-C₄alkyl, NHSO₂-C₁-C₄alkyl, NHSO₂-phenyl, N(C₁-C₆alkyl)SO₂-C₁-C₄alkyl,

 $N(C_1-C_6alkyl)SO_2-phenyl,\ N(C_2-C_6alkenyl)SO_2-C_1-C_4alkyl,\ N(C_2-C_6alkenyl)SO_2-phenyl,\ N(C_3-C_6alkynyl)SO_2-phenyl,\ N(C_3-C_7cycloalkyl)SO_2-C_1-C_4-alkyl,\ N(C_3-C_7cycloalkyl)SO_2-phenyl,\ N(phenyl)SO_2-phenyl,\ N$

R₀₁ is C₁-C₄alkylene-C₃-C₇cycloalkyl, phenyl, or phenyl substituted by C₁-C₄alkyl, C₁-C₆halo-alkynyloxy, halogen, nitro, cyano, -COOH, COOC₁-C₄alkyl, COOphenyl, C₁-C₄alkoxy, phenoxy, (C₁-C₄alkoxy)-C₁-C₄alkyl, (C₁-C₄alkylthio)-C₁-C₄alkyl, (C₁-C₄alkylsulfinyl)-C₁-C₄alkyl, $(C_1-C_4$ alkylsulfonyl)- C_1-C_4 alkyl, NHSO₂- C_1-C_4 alkyl, NHSO₂-phenyl, N(C_1-C_6 alkyl)SO₂- C_1-C_4 alkyl, N(C₁-C₆alkyl)SO₂-phenyl, N(C₂-C₆alkenyl)SO₂-C₁-C₄alkyl, N(C₂-C₆alkenyl)SO₂-phenyl, alkyl, N(C₃-C₇cycloalkyl)SO₂-phenyl, N(phenyl)SO₂-C₁-C₄alkyl, N(phenyl)SO₂-phenyl, OSO₂-C₁-C₄alkyl, CONR₀₄₅R₀₄₆, OSO₂-C₁-C₄haloalkyl, OSO₂-phenyl, C₁-C₄alkylthio, C₁-C₄haloalkylthio, phenylthio, C₁-C₄alkylsulfonyl, C₁-C₄haloalkylsulfonyl, phenylsulfonyl, C₁-C₄alkylsulfinyl, C₁-C₄haloalkylsulfinyl, phenylsulfinyl or by -NR₀₄₈CO₂R₀₄₇; or R₀₁ is C₁-C₄alkylenephenyl, COR₀₇ or from 4- to 6-membered heterocyclyl; R₀₂, R₀₃₈, R₀₄₄ and R₀₆₆ are each independently of the others hydrogen, C₁-C₄alkyl, phenyl, or phenyl substituted by C₁-C₄alkyl, C₁-C₆haloalkyl, C₁-C₄alkoxy, C₁-C₄haloalkoxy, C₂-C₆alkenyl, C₃-C₆alkynyl, C₃-C₆alkenyloxy, C₃-C₆alkynyloxy, halogen, nitro, cyano, -COOH, COOC₁-C₄alkyl, COOphenyl, C₁-C₄alkoxy, phenoxy, (C₁-C₄alkoxy)-C₁-C₄alkyl, (C₁-C₄alkylthio)-C₁-C₄alkyl, $(C_1-C_4$ alkylsulfinyl)- C_1-C_4 alkyl, $(C_1-C_4$ alkylsulfonyl)- C_1-C_4 alkyl, NHSO₂- C_1-C_4 alkyl, NHSO₂-phenyl, N(C_1 - C_6 alkyl)SO₂- C_1 - C_4 alkyl, N(C_1 - C_6 alkyl)SO₂-phenyl, N(C_2 - C_6 alkenyl)-SO₂-C₁-C₄alkyl, N(C₂-C₆alkenyl)SO₂-phenyl, N(C₃-C₆alkynyl)SO₂-C₁-C₄alkyl, N(C₃-C₆alkynyl)SO₂-phenyl, N(C₃-C₇cycloalkyl)SO₂-C₁-C₄alkyl, N(C₃-C₇cycloalkyl)SO₂-phenyl, N(phenyl)SO₂-C₁-C₄alkyl, N(phenyl)SO₂-phenyl, OSO₂-C₁-C₄alkyl, CONR₀₄₉R₀₅₀, OSO₂-C₁-C₄haloalkyl, OSO₂-phenyl, C₁-C₄alkylthio, C₁-C₄haloalkylthio, phenylthio, C₁-C₄alkylsulfonyl, C₁-C₄haloalkylsulfonyl, phenylsulfonyl, C₁-C₄alkylsulfinyl, C₁-C₄haloalkylsulfinyl, phenylsulfinyl, -C₁-C₄-alkylphenyl or by -NR₀₅₂CO₂R₀₅₃;

 R_{039} and R_{067} are each independently of the others $C_1\text{-}C_4$ alkyl, phenyl, or phenyl substituted by $C_1\text{-}C_4$ alkyl, $C_1\text{-}C_6$ haloalkyl, $C_1\text{-}C_4$ alkoxy, $C_1\text{-}C_4$ haloalkoxy, $C_2\text{-}C_6$ alkenyl, $C_3\text{-}C_6$ alkynyl, $C_3\text{-}C_6$ alkynyl, $C_3\text{-}C_6$ alkynyloxy, halogen, nitro, cyano, -COOH, COOC $_1\text{-}C_4$ alkyl, COOphenyl, $C_1\text{-}C_4$ alkoxy, phenoxy, $(C_1\text{-}C_4$ alkoxy)- $C_1\text{-}C_4$ alkyl, $(C_1\text{-}C_4$ alkylthio)- $C_1\text{-}C_4$ alkyl, $(C_1\text{-}C_4$ alkylsulfinyl)- $C_1\text{-}C_4$ alkyl, $(C_1\text{-}C_4$ alkyl, NHSO $_2$ - $C_1\text{-}C_4$ alkyl, NHSO $_2$ -phenyl, N($C_1\text{-}C_4$ alkyl)SO $_2\text{-}C_1\text{-}C_4$ alkyl, N($C_1\text{-}C_6$ alkyl)SO $_2\text{-}C_1\text{-}C_4$ alkyl, N($C_3\text{-}C_6$ alkynyl)SO $_2\text{-}C_1\text{-}C_4$ alkyl, N($C_3\text{-}C_6$ alkyl)SO $_3\text{-}C_1\text{-}C_4$ alkyl, N($C_3\text{-}C_6$ a

R₀₄ is C₁-C₄alkyl;

 $R_{05} \text{ is hydrogen, } C_1\text{-}C_4\text{alkyl, } C_2\text{-}C_6\text{alkenyl, } C_3\text{-}C_6\text{alkynyl, } C_3\text{-}C_7\text{cycloalkyl, phenyl, or phenyl substituted by } C_1\text{-}C_4\text{alkyl, } C_1\text{-}C_6\text{haloalkyl, } C_1\text{-}C_4\text{alkoxy, } C_1\text{-}C_4\text{haloalkoxy, } C_2\text{-}C_6\text{alkenyl, } C_3\text{-}C_6\text{-}alkynyl, } C_3\text{-}C_6\text{-}alkynyl, } C_3\text{-}C_6\text{-}alkynyl, } C_3\text{-}C_6\text{-}alkynyloxy, halogen, nitro, cyano, -}COOH, COOC_1\text{-}C_4\text{alkyl, } COOphenyl, } C_1\text{-}C_4\text{alkoxy, phenoxy, } (C_1\text{-}C_4\text{alkoxy})\text{-}C_1\text{-}C_4\text{alkyl, } (C_1\text{-}C_4\text{alkylthio})\text{-}C_1\text{-}C_4\text{alkyl, } (C_1\text{-}C_4\text{alkyl, } NHSO_2\text{-}C_1\text{-}C_4\text{alkyl, } NHSO_2\text{-}C_1\text{-}C_4\text{alkyl, } NHSO_2\text{-}C_1\text{-}C_4\text{alkyl, } NHSO_2\text{-}C_1\text{-}C_4\text{alkyl, } NHSO_2\text{-}C_1\text{-}C_4\text{alkyl, } N(C_1\text{-}C_6\text{alkyl})\text{-}SO_2\text{-}C_1\text{-}C_4\text{alkyl, } N(C_2\text{-}C_6\text{alkenyl})\text{-}SO_2\text{-}C_1\text{-}C_4\text{alkyl, } N(C_2\text{-}C_6\text{alkenyl})\text{-}SO_2\text{-}Dhenyl, } N(C_3\text{-}C_6\text{alkynyl})\text{-}SO_2\text{-}Dhenyl, } N(C_3\text{-}C_6\text{alkynyl})\text{-}SO_2\text{-}C_1\text{-}C_4\text{alkyl, } N(C_3\text{-}C_6\text{alkynyl})\text{-}SO_2\text{-}Dhenyl, } N(C_3\text{-}C_7\text{cycloalkyl})\text{-}SO_2\text{-}C_1\text{-}C_4\text{alkyl, } N(C_3\text{-}C_7\text{cycloalkyl})\text{-}SO_2\text{-}Dhenyl, } N(C_3\text{-}C_7\text{-}C_4\text{alkyl, } N(C_3\text{-}C_7\text{-}C_4\text{-}$

 $R_{06} \text{ is hydrogen, } C_1\text{-}C_4\text{alkyl, } C_2\text{-}C_6\text{alkenyl, } C_3\text{-}C_6\text{alkynyl, } C_3\text{-}C_7\text{cycloalkyl, phenyl, or phenyl substituted by } C_1\text{-}C_4\text{alkyl, } C_1\text{-}C_6\text{haloalkyl, } C_1\text{-}C_4\text{alkoxy, } C_1\text{-}C_4\text{haloalkoxy, } C_2\text{-}C_6\text{alkenyl, } C_3\text{-}C_6\text{alkenyloxy, } C_3\text{-}C_6\text{alkynyloxy, halogen, nitro, cyano, -}COOH, COOC_1\text{-}C_4\text{-}alkyl, COOphenyl, } C_1\text{-}C_4\text{alkoxy, phenoxy, } (C_1\text{-}C_4\text{alkoxy})\text{-}C_1\text{-}C_4\text{alkyl, } (C_1\text{-}C_4\text{alkylthio})\text{-}C_1\text{-}C_4\text{-}alkyl, } (C_1\text{-}C_4\text{alkyl, nhso}_2\text{-}C_1\text{-}C_4\text{alkyl, } (C_1\text{-}C_4\text{alkyl, nhso}_2\text{-}C_1\text{-}C_4\text{alkyl, } (C_1\text{-}C_6\text{alkyl})\text{-}C_1\text{-}C_4\text{alkyl, nhso}_2\text{-}C_1\text{-}C_4\text{alkyl, nhso}_2\text{-}C_1\text{-}C_6\text{alkenyl}} (C_1\text{-}C_6\text{alkyl})\text{-}C_1\text{-}C_6\text{alkyl, nhso}_2\text{-}C_1\text{-}C_6\text{alkyl, nhso}_2\text{-}C_1\text{-$

 SO_2 - C_1 - C_4 alkyl, N(phenyl) SO_2 -phenyl, OSO_2 - C_1 - C_4 alkyl, $CONR_{061}R_{062}$, OSO_2 - C_1 - C_4 haloalkyl, OSO_2 -phenyl, C_1 - C_4 alkylthio, C_1 - C_4 haloalkylthio, phenylthio, C_1 - C_4 alkylsulfonyl, C_1 - C_4 haloalkylsulfinyl, C_1 - C_4 haloalkylsulfinyl, phenylsulfinyl, C_1 - C_4 -alkylsulfinyl, C_1 - C_4 -alkylenephenyl or by - $NR_{064}CO_2R_{063}$;

R₀₇ is phenyl, C₁-C₄alkyl, C₁-C₄alkoxy or -NR₀₈R₀₉;

 R_{08} and R_{09} are each independently of the other C_1 - C_4 alkyl, phenyl, or phenyl substituted by halogen, nitro, cyano, C_1 - C_4 alkyl, C_1 - C_4 alkoxy, C_1 - C_4 thioalkyl, - CO_2R_{066} , - COR_{087} , C_1 - C_4 -alkylsulfonyl, C_1 - C_4 alkylsulfinyl or by C_1 - C_4 haloalkyl; or R_{08} and R_{09} together form a 5- or 6-membered ring, which may be interrupted by oxygen, NR_{065} or by S;

 R_{015} , R_{031} , R_{043} , R_{048} , R_{052} , R_{056} , R_{060} and R_{064} are each independently of the others hydrogen, C_1 - C_4 alkyl, C_2 - C_6 alkenyl, C_3 - C_6 alkynyl or C_3 - C_7 cycloalkyl;

 R_{025} , R_{026} , R_{027} , R_{028} , R_{029} , R_{030} , R_{032} , R_{033} , R_{034} , R_{035} , R_{036} , R_{037} , R_{040} , R_{041} , R_{042} , R_{045} , R_{046} , R_{047} , R_{049} , R_{050} , R_{053} , R_{055} , R_{057} , R_{058} , R_{059} , R_{061} , R_{062} , R_{063} , R_{065} and R_{068} are each independently of the others hydrogen, C_1 - C_4 alkyl, C_2 - C_6 alkenyl, C_3 - C_6 alkynyl, C_3 - C_7 cycloalkyl, phenyl, or phenyl substituted by halogen, nitro, cyano, C_1 - C_4 alkoxy, C_1 - C_4 haloalkylthio, C_1 - C_4 haloalkylthio, C_1 - C_4 haloalkylthio, C_1 - C_4 haloalkyl, or by C_1 - C_4 haloalkyl; and R_{36} is C_1 - C_4 alkyl, C_1 - C_4 haloalkyl, C_3 - C_6 alkenyl, C_3 - C_6 alkenyl, C_3 - C_6 alkynyl, C_3 - C_6 haloalkyl, C_3 - C_6

 R_{36} is C_1 - C_4 alkyl, C_1 - C_4 haloalkyl, C_3 - C_6 alkenyl, C_3 - C_6 haloalkenyl, C_3 - C_6 alkynyl, C_3 - C_6 alkynyl, C_3 - C_6 cycloalkyl, or C_3 - C_6 cycloalkyl substituted by halogen, C_1 - C_4 alkyl, C_1 - C_4 haloalkyl, C_3 - C_6 alkenyl, C_3 - C_6 haloalkenyl, C_3 - C_6 alkynyl, C_3 - C_6 haloalkynyl, C_1 - C_4 alkylsulfonyl, C_1 - C_4 - C_4 Alkylsulfonyl, C_1 - C_4 - C_4 Alkylsulfonyl, C_1 -

C₄haloalkylsulfinyl, C₁-C₄haloalkylsulfonyl, C₁-C₄alkylcarbonyl, di(C₁-C₄alkyl)amino, C₁-C₄alkoxy, C₁-C₄haloalkoxy, C₁-C₄haloalkyl-S(O)₂O, C₁-C₄haloalkyl-S(O)₂O, or by phenyl which may itself be substituted by halogen, C₁-C₄alkyl, C₁-C₄haloalkyl, C₃-C₆alkenyl, C₃-C₆alkynyl, cyano, nitro or by COOH;

or an agronomically acceptable salt of such a compound, and

b) a synergistically effective amount of one or more compounds selected from a compound of formula 2.1

$$R_{52}$$
 N
 N
 Me
 Me
 Me
 Me
 Me
 Me

wherein R₅₁ is CH₂-OMe, ethyl or hydrogen;

 R_{52} is hydrogen or R_{51} and R_{52} together are the group -CH=CH-CH=CH-; and a compound of formula 2.2

$$R_{53}$$
 R_{55}
 CH_2CI
 R_{54} O

wherein R_{53} is ethyl, R_{54} is methyl or ethyl and R_{55} is -CH(Me)-CH₂OMe, <S>-CH(Me)-CH₂OMe, CH₂OMe or CH₂O-CH₂CH₃; and a compound of formula 2.3

Me
$$R_{56}$$
 CH_2CI (2.3),

wherein R₅₆ is CH(Me)-CH₂OMe or <S>CH(Me)-CH₂OMe; and a compound of formula 2.4

wherein R_{57} is chlorine, methoxy or methylthio, R_{58} is ethyl and R_{59} is ethyl, isopropyl, $-C(CN)(CH_3)-CH_3$ or tert-butyl; and a compound of formula 2.5

wherein R₆₀ is ethyl or n-propyl, R₆₁ is COO 1/2 Ca⁺⁺, -CH₂-CH(Me)S-CH₂CH₃ or the group

and a compound of formula 2.6

wherein R_{62} is hydrogen, methoxy or ethoxy, R_{63} is hydrogen, methyl, methoxy or fluorine, R_{64} is COOMe, fluorine or chlorine, R_{65} is hydrogen or methyl, Y is methine, C-F or nitrogen, Z is methine or nitrogen and R_{66} is fluorine or chlorine; and a compound of formula 2.7

wherein R₆₇ is hydrogen or -C(O)-S-n-octyl; and a compound of formula 2.8

wherein R₆₈ is either bromine or iodine; and a compound of formula 2.9

wherein R_{69} is chlorine or nitro; and a compound of formula 2.10

$$CI \longrightarrow N$$
 N
 N
 N
 Me
 (2.10)

wherein R_{70} is fluorine or chlorine and R_{71} is -CH₂-CH(Cl)-COOCH₂CH₃ or -NH-SO₂Me; and a compound of formula 2.11

wherein R_{72} is trifluoromethyl or chlorine; and a compound of formula 2.12

wherein R₇₃ is NH₂ or <S>NH₂; and a compound of formula 2.13

wherein Y_1 is nitrogen, methine, NH-CHO or N-Me, Y_2 is nitrogen, methine or C-I, Y_3 is methine, Y_4 is methine or Y_3 and Y_4 together are sulfur or C-CI, Y_5 is nitrogen or methine, Y_6 is methyl, difluoromethoxy, trifluoromethyl or methoxy, Y_7 is methoxy or difluoromethoxy and R_{74} is CONMe₂, COOMe, COOC₂H₅, trifluoromethyl, CH₂-CH₂CF₃ or SO₂CH₂CH₃, or a sodium salt thereof ("Me" being in each case the methyl group); and the compound of formula 2.13.c

and the compound of formula 2.14

and the compound of formula 2.15

$$O_2N$$
 O_2 O_2 O_2 O_2 O_3 O_4 O_4 O_4 O_5 O_5

and the compound of formula 2.18

Me
$$N^{+}O^{-}$$

Me $N^{+}O^{-}$

Me Me
 $N^{+}O^{-}$

Me Me
 $N^{+}O^{-}$

Me Me

and the compound of formula 2.19

and the compound of formula 2.20

and the compound of formula 2.23

and the compound of formula 2.26

and the compound of formula 2.27

and the compound of formula 2.28

and the compound of formula 2.31

and the compound of formula 2.32

$$CI$$
 N
 N
 Me
 (2.32) ,
 Me

HOOC
$$N$$
 P O Me S Me Me Me Me

$$H_2N$$
 \longrightarrow $SO_2NHCO_2CH_3$ (2.34), and the compound of formula 2.35

$$CH_3NH \xrightarrow{N} N \xrightarrow{CF_3} (2.35),$$

and the compound of formula 2.36

$$CH_3$$
 N O (2.36), $C(CH_3)_3$

and the compound of formula 2.37

$$S$$
 $CH_2CH(CH_3)_2$ CO_2CH_3 (2.37), CF_2H

and the compound of formula 2.38

$$F_3C$$
 N CHF_2 CH_3SOC $CH_2CH(CH_3)_2$ $(2.38),$

and the compound of formula 2.39

$$(CH_3)_2N + N + O$$
 $N + N + O$
 $(2.39),$

$$CI$$
 NHCON(CH_3)₂ (2.40),

$$CI \longrightarrow OCH_2CO_2H$$
 (2.41),

and the compound of formula 2.42

$$CI \longrightarrow CH_3$$
 CH_3
 CH_3
 (2.42) ,

$$(CH_3)_3C \xrightarrow{S}_N CONHCH_3$$
 $N-N$
(2.43),

and the compound of formula 2.43

and the compound of formula 2.44

and the compound of formula 2.45

and the compound of formula 2.48

and the compound of formula 2.49

and the compound of formula 2.50

$$H_3C$$
 CH_3
 CH_3

$$CI \xrightarrow{F} O \xrightarrow{CH_3} F$$

$$O \xrightarrow{N} F$$

$$CI \xrightarrow{N} F$$

$$F$$

$$O \xrightarrow{CH_3} CH_3$$

$$O \xrightarrow{CH_3} CH_3$$

In the above formulae, "Me" is a methyl group. The alkyl groups appearing in the substituent definitions may be straight-chained or branched and are, for example, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, pentyl, hexyl, heptyl, octyl, nonyl, decyl, undecyl and dodecyl and also branched isomers thereof. Alkoxy, alkenyl and alkynyl radicals are derived from the mentioned alkyl radicals. The alkenyl and alkynyl groups may be unsaturated once or more than once.

An alkylene group may be substituted by one or more methyl groups; preferably, such alkylene groups are unsubstituted in each case. The same also applies to all C₃-C₅cycloalkyl-, C₃-C₅oxacycloalkyl-, C₃-C₅thiacycloalkyl-, C₃-C₄dioxacycloalkyl-, C₃-C₄dithiacycloalkyl-, C₃-C₄oxathiacycloalkyl- and N(CH₂)-containing groups.

Halogen is, generally, fluorine, chlorine, bromine or iodine. The same correspondingly applies to halogen in the context of other definitions, such as haloalkyl or halophenyl.

Haloalkyl groups having a chain length of from 1 to 6 carbon atoms are, for example, fluoromethyl, difluoromethyl, trifluoromethyl, chloromethyl, dichloromethyl, trichloromethyl, 2,2,2-trifluoroethyl, 2-fluoroethyl, 2-chloroethyl, pentafluoroethyl, 1,1-difluoro-2,2,2-trichloroethyl, 2,2,3,3-tetrafluoroethyl and 2,2,2-trichloroethyl, pentafluoroethyl, heptafluoro-n-propyl, perfluoro-n-hexyl; haloalkyl groups in the definitions of R_2 , R_3 and especially R_5 are preferably trichloromethyl, dichlorofluoromethyl, difluorochloromethyl, difluoromethyl, trifluoromethyl, pentafluoroethyl or heptafluoro-n-propyl.

Suitable haloalkenyl radicals include alkenyl groups substituted one or more times by halogen, halogen being fluorine, chlorine, bromine or iodine and especially fluorine or chlorine, for example 2,2-difluoro-1-methylvinyl, 3-fluoropropenyl, 3-chloropropenyl, 3-chloropropenyl, 3-bromopropenyl, 2,3,3-trifluoropropenyl, 2,3,3-trichloropropenyl and 4,4,4-trifluorobut-2-en-1-yl. Preferred C₂-C₁₂alkenyl radicals substituted once, twice or three times by halogen are those having a chain length of from 2 to 5 carbon atoms. Suitable haloalkynyl radicals

include, for example, alkynyl groups substituted one or more times by halogen, halogen being bromine or iodine and, especially, fluorine or chlorine, for example 3-fluoropropynyl, 3-chloropropynyl, 3-bromopropynyl, 3,3,3-trifluoropropynyl and 4,4,4-trifluoro-but-2-yn-1-yl. Preferred alkynyl groups substituted one or more times by halogen are those having a chain length of from 2 to 5 carbon atoms.

Alkoxy groups preferably have a chain length of from 1 to 6 carbon atoms. Alkoxy is, for example, methoxy, ethoxy, propoxy, isopropoxy, n-butoxy, isobutoxy, sec-butoxy or tert-butoxy or a pentyloxy or hexyloxy isomer, preferably methoxy and ethoxy. Alkylcarbonyl is preferably acetyl or propionyl. Alkoxycarbonyl is, for example, methoxycarbonyl, ethoxycarbonyl, propoxycarbonyl, isopropoxycarbonyl, n-butoxycarbonyl, isobutoxycarbonyl, sec-butoxycarbonyl or tert-butoxycarbonyl, preferably methoxycarbonyl, ethoxycarbonyl or tert-butoxycarbonyl, preferably have a chain length of from 1 to 8 carbon atoms.

Haloalkoxy is, for example, fluoromethoxy, difluoromethoxy, trifluoromethoxy, 2,2,2-trifluoroethoxy, 1,1,2,2-tetrafluoroethoxy, 2-fluoroethoxy, 2-chloroethoxy, 2,2-difluoroethoxy or 2,2,2-trichloroethoxy, preferably difluoromethoxy, 2-chloroethoxy or trifluoromethoxy.

Alkylthio groups preferably have a chain length of from 1 to 8 carbon atoms.

Alkylthio is, for example, methylthio, ethylthio, propylthio, isopropylthio, n-butylthio, isobutylthio, sec-butylthio or tert-butylthio, preferably methylthio or ethylthio. Alkylsulfinyl is, for example, methylsulfinyl, ethylsulfinyl, propylsulfinyl, isopropylsulfinyl, n-butylsulfinyl, isobutylsulfinyl, sec-butylsulfinyl or tert-butylsulfinyl, preferably methylsulfinyl or ethylsulfinyl, n-butylsulfonyl, isopropylsulfonyl, n-butylsulfonyl, isobutylsulfonyl, sec-butylsulfonyl, propylsulfonyl, preferably methylsulfonyl, preferably methylsulfonyl, isobutylsulfonyl, sec-butylsulfonyl or tert-butylsulfonyl, preferably methylsulfonyl, preferably methylsulfonyl, or ethylsulfonyl, preferably methylsulfonyl or ethylsulfonyl.

Alkylamino is, for example, methylamino, ethylamino, n-propylamino, isopropylamino or a butylamine isomer. Dialkylamino is, for example, dimethylamino, methylethylamino, diethylamino, n-propylmethylamino, dibutylamino or diisopropylamino. Preference is given to alkylamino groups having a chain length of from 1 to 4 carbon atoms. Alkoxyalkyl groups preferably have from 1 to 6 carbon atoms. Alkoxyalkyl is, for example, methoxymethyl, methoxyethyl, ethoxymethyl, n-propoxymethyl, n-propoxyethyl, isopropoxymethyl or isopropoxyethyl. Alkylthioalkyl groups preferably have from 1 to 6 carbon atoms. Alkylthioalkyl is, for example, methylthiomethyl, methylthioethyl, ethylthiomethyl, ethylthio-

ethyl, n-propylthiomethyl, n-propylthioethyl, isopropylthiomethyl, isopropylthioethyl, butylthiomethyl, butylthioethyl or butylthiobutyl.

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The cycloalkyl groups preferably have from 3 to 6 ring carbon atoms and may be substituted by one or more methyl groups; they are preferably unsubstituted, for example cyclopropyl, cyclobutyl, cyclopentyl or cyclohexyl. Phenyl, including phenyl as part of a substituent such as phenoxy, benzyl, benzyloxy, benzoyl, phenylthio, phenylalkyl, phenoxyalkyl or tosyl, may be in mono- or poly-substituted form, in which case the substituents may, as desired, be in the ortho-, meta- and/or para-position(s).

The invention also includes the salts that the compounds of formula I may form with amines, alkali metal and alkaline earth metal bases or quaternary ammonium bases. Among the alkali metal and alkaline earth metal hydroxides used as salt formers, emphasis is to be given to the hydroxides of lithium, sodium, potassium, magnesium and calcium, but especially those of sodium and potassium.

Examples of suitable amines for ammonium salt formation that come into consideration are ammonia as well as primary, secondary and tertiary C₁-C₁8alkylamines, C₁-C₄hydroxyalkylamines and C₂-C₄alkoxyalkylamines, for example methylamine, ethylamine, n-propylamine, isopropylamine, the four butylamine isomers, n-amylamine, isoamylamine, hexylamine. heptylamine, octylamine, nonylamine, decylamine, pentadecylamine, hexadecylamine, heptadecylamine, octadecylamine, methyl-ethylamine, methyl-isopropylamine, methylhexylamine, methyl-nonylamine, methyl-pentadecylamine, methyl-octadecylamine, ethylbutylamine, ethyl-heptylamine, ethyl-octylamine, hexyl-heptylamine, hexyl-octylamine, dimethylamine, diethylamine, di-n-propylamine, diisopropylamine, di-n-butylamine, di-namylamine, diisoamylamine, dihexylamine, diheptylamine, dioctylamine, ethanolamine, n-propanolamine, isopropanolamine, N,N-diethanolamine, N-ethylpropanolamine, N-butylethanolamine, allylamine, n-butenyl-2-amine, n-pentenyl-2-amine, 2,3-dimethylbutenyl-2amine, dibutenyl-2-amine, n-hexenyl-2-amine, propylenediamine, trimethylamine, triethylamine, tri-n-propylamine, triisopropylamine, tri-n-butylamine, triisobutylamine, tri-secbutylamine, tri-n-amylamine, methoxyethylamine and ethoxyethylamine; heterocyclic amines, for example pyridine, quinoline, isoquinoline, morpholine, piperidine, pyrrolidine, indoline, quinuclidine and azepine; primary aryl amines for example anilines, methoxyanilines, ethoxyanilines, o-, m- and p-toluidines, phenylenediamines, benzidines, naphthylamines and

o-, m- and p-chloroanilines; but especially triethylamine, isopropylamine and diisopropylamine.

It is extremely surprising that the combination of the active ingredient of formula I with one or more active ingredients selected from formulae 2.1 to 2.51 exceeds the additive effect on the weeds to be controlled that is to be expected in principle, and thus broadens the range of action of the individual active ingredients especially in two respects: Firstly, the rates of application of the individual compounds of formulae 1 and 2.1 to 2.51 are reduced while a good level of action is maintained and, secondly, the composition according to the invention achieves a high level of weed control also in those cases where the individual substances, in the range of low rates of application, have become unusable from the agronomic standpoint. The result is a considerable broadening of the spectrum of weeds and an additional increase in selectivity in respect of the crops of useful plants, as is necessary and desirable in the event of an unintentional overdose of active ingredient. The composition according to the invention, while retaining excellent control of weeds in crops of useful plants, also enables greater flexibility in succeeding crops.

The composition according to the invention can be used against a large number of agronomically important weeds, such as Stellaria, Nasturtium, Agrostis, Digitaria, Avena, Setaria, Sinapis, Lolium, Solanum, Phaseolus, Echinochloa, Scirpus, Monochoria, Sagittaria, Bromus, Alopecurus, Sorghum halepense, Rottboellia, Cyperus, Abutilon, Sida, Xanthium, Amaranthus, Chenopodium, Ipomoea, Chrysanthemum, Galium, Viola and Veronica. The composition according to the invention is suitable for all methods of application conventionally used in agriculture, e.g. pre-emergence application, post-emergence application and seed dressing. The composition according to the invention is suitable especially for controlling weeds in crops of useful plants, such as cereals, rape, sugar beet, sugar cane, plantation crops, rice, maize and soybeans, and also for non-selective weed control.

"Crops" are to be understood to mean also those crops which have been made tolerant to herbicides or classes of herbicides as a result of conventional methods of breeding or genetic engineering.

Preferred compositions according to the invention comprise compounds of formula I wherein

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each R is independently hydrogen, C₁-C₆alkyl, C₂-C₆alkenyl, C₂-C₆haloalkenyl, C₂-C₆alkynyl, C2-C6haloalkynyl, C3-C6cycloalkyl, C1-C6alkoxy, C1-C6haloalkoxy, C1-C6alkylthio, C1-C6alkylsulfinyl, C₁-C₆alkylsulfonyl, C₁-C₆haloalkyl, C₁-C₆haloalkylthio, C₁-C₆haloalkylsulfinyl, C₁-C₆haloalkylsulfonyl, C₁-C₆alkoxycarbonyl, C₁-C₆alkylcarbonyl, C₁-C₆alkyl)amino, C₁-C₆alkylaminosulfonyl, di(C₁-C₆alkyl)aminosulfonyl, -N(R₁)-S-R₂, -N(R₃)-SO-R₄, -N(R₅)-SO₂-R₅, nitro, cyano, halogen, hydroxy, amino, benzylthio, benzylsulfinyl, benzylsulfonyl, phenyl, phenoxy, phenylthio, phenylsulfinyl or phenylsulfonyl; wherein the phenyl group may itself be mono-, di- or tri-substituted by C₁-C₆alkyl, C₁-C₆haloalkyl, C₃-C₆alkenyl, C₃-C₆haloalkenyl, C₃-C₆alkynyl, C₃-C₆haloalkynyl, C₁-C₆alkoxy, C₁-C₆haloalkoxy, C₃-C₆alkenyloxy, C₃-C₆alkynyloxy, mercapto, C₁-C₆alkylthio, C₁-C₆haloalkylthio, C₃-C₆alkenylthio. C₃-C₆haloalkenylthio, C₃-C₆alkynylthio, C₂-C₅alkoxyalkylthio, C₃-C₅acetylalkylthio, C₃-C₆alkoxycarbonylalkylthio, C₂-C₄cyanoalkylthio, C₁-C₆alkylsulfinyl, C₁-C₆haloalkylsulfinyl, C₁-C₆alkylsulfonyl, C₁-C₆haloalkylsulfonyl, aminosulfonyl, C₁-C₂alkylaminosulfonyl, C₂-C₄dialkylaminosulfonyl, C₁-C₃alkylene-R₄₅, NR₄₆R₄₇, halogen, cyano, nitro, phenyl or by benzylthio, wherein the latter phenyl and benzylthio groups may themselves be substituted on the phenyl ring by C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, halogen. cyano or by nitro:

or each R is independently a monocyclic or fused bicyclic ring system having from 5 to 10 members, which may be aromatic or partially saturated and may contain from 1 to 4 hetero atoms selected from nitrogen, oxygen and sulfur; wherein the ring system either is bound directly to the pyridine ring or is bound to the pyridine ring via a C₁-C₄alkylene group, and each ring system may not contain more than two oxygen atoms and may not contain more than two sulfur atoms, and the ring system may itself be mono-, di- or tri-substituted by C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, C_3 - C_6 alkenyl, C_3 - C_6 haloalkenyl, C_3 - C_6 haloalkynyl, C_3 - C_6 haloalkynyl, C₁-C₆alkoxy, C₁-C₆haloalkoxy, C₃-C₆alkenyloxy, C₃-C₆alkynyloxy, mercapto, C₁-C₆alkylthio, C₁-C₆haloalkylthio, C₃-C₆alkenylthio, C₃-C₆haloalkenylthio, C₃-C₆alkynylthio, C₂-C₅alkoxyalkylthio, C₃-C₅acetylalkylthio, C₃-C₆alkoxycarbonylalkylthio, C₂-C₄cyanoalkylthio, C₁-C₆alkylsulfinyl, C₁-C₆haloalkylsulfinyl, C₁-C₆alkylsulfonyl, C₁-C₆haloalkylsulfonyl, aminosulfonyl, C₁-C₂alkylaminosulfonyl, C₂-C₄dialkylaminosulfonyl, C₁-C₃alkylene-R₇, NR₈R₉, halogen, cyano, nitro, phenyl or by benzylthio, wherein phenyl and benzylthio may themselves be substituted on the phenyl ring by C₁-C₃alkyl, C₁-C₃alkoxy, C₁-C₃alkoxy, C₁-C₃haloalkoxy, halogen, cyano or by nitro, and wherein the substituents on the nitrogen in the heterocyclic ring are other than halogen.

Compositions according to the invention that are also preferred comprise, as compound of formula I, a compound of formula Ia

wherein

 R_{48} is C_1 - C_6 alkyl, C_2 - C_6 alkenyl, C_2 - C_6 haloalkenyl, C_2 - C_6 alkynyl, C_2 - C_6 haloalkynyl, C_3 - C_6 cycloalkyl, C₁-C₆haloalkyl, or a monocyclic or fused bicyclic ring system having from 5 to 10 members, which may be aromatic or partially saturated and may contain from 1 to 4 hetero atoms selected from nitrogen, oxygen and sulfur, wherein the ring system either is bound directly to the pyridine ring or is bound to the pyridine ring via a C1-C4alkylene group, and each ring system may not contain more than two oxygen atoms and may not contain more than two sulfur atoms, and the ring system may itself be mono-, di- or tri-substituted by C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, C_3 - C_6 alkenyl, C_3 - C_6 haloalkynyl, C_3 - C_6 haloalkynyl, C_3 - C_6 haloalkynyl, C₁-C₆alkoxy, C₁-C₆haloalkoxy, C₃-C₆alkenyloxy, C₃-C₆alkynyloxy, mercapto, C₁-C₆alkylthio, C_1 - C_6 haloalkylthio, C_3 - C_6 alkenylthio, C_3 - C_6 haloalkenylthio, C_3 - C_6 alkynylthio, C_2 - C_5 alkoxyalkylthio, C₃-C₅acetylalkylthio, C₃-C₆alkoxycarbonylalkylthio, C₂-C₄cyanoalkylthio, C₁-C₆alkylsulfinyl, C₁-C₆haloalkylsulfinyl, C₁-C₆alkylsulfonyl, C₁-C₆haloalkylsulfonyl, aminosulfonyl, $C_1-C_2 \\ alkylaminosulfonyl, C_2-C_4 \\ dialkylaminosulfonyl, C_1-C_3 \\ alkylene-R_7, NR_8 \\ R_9, \\ halogen, \\ nR_8 \\ nR_9, \\ halogen, \\ nR_8 \\ nR_9, \\ halogen, \\ nR_8 \\ nR_9, \\ nR_8 \\ nR_9 \\$ cyano, nitro, phenyl or by benzylthio, wherein phenyl and benzylthio may themselves be substituted on the phenyl ring by C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, halogen, cyano or by nitro, and wherein the substituents on the nitrogen in the heterocyclic ring are other than halogen;

 R_{49} is hydrogen, C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, halogen, or phenyl which may be substituted by C_1 - C_3 alkyl, C_1 - C_3 haloalkyl, C_1 - C_3 alkoxy, C_1 - C_3 haloalkoxy, halogen, cyano or by nitro, and R_{50} is C_1 - C_6 haloalkyl.

Among that group of compounds preference is given to those wherein R_{48} is C_1 - C_6 alkyl, C_2 - C_6 alkenyl, C_2 - C_6 haloalkenyl, C_2 - C_6 haloalkynyl, C_3 - C_6 cycloalkyl or C_1 - C_6 -haloalkyl.

Preference is given also to compositions wherein, in formula I, Q is the group Q_2 or Q_3 , wherein, especially, in the group Q_2 R₂₃ is hydroxy and in the group Q_3 R₄₀ is hydroxy. Among that group emphasis is to be given to those compounds wherein m is 2 and one substituent R is C_1 - C_4 alkoxy- C_1 - C_4 alkyl or C_1 - C_4 alkoxy- C_1 - C_4 alkyl.

Further preferred synergistic mixtures according to the invention comprise as active ingredients a compound of formula I and either a compound of formula 2.2.a

$$\begin{array}{c} \text{CH}_3\\ \text{C(O)-CH}_2\text{CI}\\ \\ \text{N}\\ \text{HC}^*--\text{CH}_2\text{OCH}_3\\ \\ \text{C}_2\text{H}_5\text{ CH}_3 \end{array} \\ \text{(2.2.a, aRS,1'S(-)N-(1'-methyl-2'-methoxyethyl)-N-}\\ \end{array}$$

chloroacetyl-2-ethyl-6-methylaniline), or a compound of formula 2.2.b

$$\begin{array}{c|c} CH_3 \\ C(O)\text{-}CH_2CI \\ \\ HC ---CH_2OCH_3 \\ \\ C_2H_5 CH_3 \end{array} (2.2.b)$$

or a compound of formula 2.2 wherein R_3 is ethyl, R_4 is methyl and R_5 is ethoxymethyl, or a compound of formula 2.2 wherein R_3 is ethyl, R_4 is ethyl and R_5 is methoxymethyl, or a compound 2.3, or a compound of formula 2.30, or a compound of formula 2.4, or a compound of formula 2.13, or a compound of formula 2.14, or a compound of formula 2.6 wherein R_{12} is hydrogen, Z is methine, R_{13} is methyl, Y is nitrogen, R_{14} is fluorine, R_{15} is hydrogen and R_{16} is fluorine, or R_{12} is methoxy, Z is methine, R_{13} is methoxy, Y is methine, R_{14} is chlorine, R_{15} is methyl and R_{16} is chlorine, or a compound of formula 2.7 wherein R_{17} is -C(O)-S-n-octyl, or a compound of formula 2.12, or a compound of formula 2.18, or a compound of formula 2.19, or a compound of formula 2.21, or a compound of formula 2.25, or a compound of formula 2.33, or a compound of formula 2.45, or a compound of formula 2.1.

Especially preferred synergistic mixtures according to the invention comprise as active ingredients a compound of formula I and either a compound of formula 2.2.a

$$\begin{array}{c} \text{CH}_3\\ \text{C(O)-CH}_2\text{CI}\\ \\ \text{N}\\ \text{HC}^*-\text{CH}_2\text{OCH}_3\\ \\ \text{C}_2\text{H}_5\text{ CH}_3 \end{array} \\ \text{(2.2.a, aRS, 1'S(-)N-(1'-methyl-2'-methoxyethyl)-N-}\\ \\ \end{array}$$

chloroacetyl-2-ethyl-6-methylaniline), or a compound of formula 2.2.b

$$CH_3$$
 $C(O)$ - CH_2CI
 C_2H_5
 CH_3
 $C(O)$ - CH_2CI
 C_2H_5
 CH_3
 CO - CH_2OCH_3
 CO - CH_2OCH_3
 CO - CH_2OCH_3

or a compound of formula 2.2 wherein R_3 is ethyl, R_4 is methyl and R_5 is ethoxymethyl, or a compound of formula 2.2 wherein R_3 is ethyl, R_4 is ethyl and R_5 is methoxymethyl, or a compound of formula 2.3, or a compound of formula 2.30.

Combinations of the compounds of formula I with the compound of formula 2.2a

chloroacetyl-2-ethyl-6-methylaniline) have been found to be especially effective, the compound 1.001 indicated hereinbelow under Table 1 being especially preferred as the compound of formula I.

The compounds of formula I can be prepared in a manner analogous to the processes described in WO 97/46530, by

a) reacting a compound of formula II

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wherein R and m are as defined for formula I and X is a leaving group, e.g. halogen, in an inert, organic solvent in the presence of a base, with compounds of formula III, IV,V or VI

wherein R_{20} , R_{23} , R_{30} and R_{40} are hydroxy and the other substituents are as defined for formula I, to form the compounds of formula VII, VIII, IX or X

$$(IX)$$
, (IX)

and then isomerising those compounds, for example in the presence of a base and a catalytic amount of dimethylaminopyridine (DMAP) or a cyanide source; or b) reacting a compound of formula XI

wherein R and m are as defined for formula I, with compounds of formula III, IV, V or VI in an inert, organic solvent in the presence of a base and a coupling agent, to form the compound of formula VII, VIII, IX or X, and then isomerising that compound, for example in the manner described under route a).

Compounds of formula I wherein Q is a group Q5

$$Z-R_{01}$$
 (Q₅),

wherein Z is sulfur and R_{38} and R_{01} are as defined for formula I, can be prepared in a manner analogous to known processes (e.g. those described in WO 97/43270), by either a) converting a compound of formula XII

wherein R_{36} , R and m are as defined, in the presence of a base, carbon disulfide and an alkylating reagent of formula XIII

$$R_{01}$$
- X_1 (XIII),

wherein R_{01} is as defined for formula I and X_1 is a leaving group, e.g. halogen or sulfonate, into the compound of formula XIV

(R)m O O O R₃₆ (XIV),
$$R_{01}Z ZR_{01}$$

wherein Z is sulfur and R, R_{01} , R_{36} and m are as defined, and then cyclising that compound with hydroxylamine hydrochloride, optionally in a solvent, in the presence of a base, to form the compound of formula le

$$(R)m \xrightarrow{Q} N \qquad (Ie),$$

wherein Z is sulfur and R, R_{36} , R_{01} and m are as defined, and then oxidising that compound with an oxidising agent, e.g. meta-chloroperbenzoic acid (m-CPBA).

Preparation of the compounds of formula I is illustrated in greater detail in the following Reaction Schemes 1 and 2.

Reaction Scheme 1

route a):

(R)m + III, IV, V or VI base, e.g.
$$(C_2H_5)_3N$$
, VII, VIII, IX, or X solvent, e.g. CH_2CI_2 , 0-110°C

isomerisation:

base, e.g.
$$(C_2H_5)_3N$$
,

KCN cat.

(R)m

route b):

The compounds of formula I containing the groups Q_1 , Q_2 , Q_3 and Q_4 wherein R_{20} , R_{23} , R_{30} and R_{40} are hydroxy can especially be prepared according to the above Reaction Scheme.

Reaction Scheme 2

WO 01/54501

For preparation of the compounds of formula I wherein Q is a group Q_1 to Q_4 and R_{20} , R_{23} , R_{30} and R_{40} are hydroxy, there are used as starting materials, in accordance with Reaction Scheme 1, route a), the carboxylic acid derivatives of formula II wherein X is a leaving group, for example halogen, e.g. iodine, bromine or especially chlorine, N-oxyphthalimide or N,O-

(formed from dicyclohexylcarbodiimide (DCC) and the appropriate carboxylic acid) or ${}^{C_2H_5N=C-NH(CH_2)_3N(CH_3)_2}$ (formed from N-ethyl-N'-(3-dimethylaminopropyl)carbodiimide

dimethylhydroxylamino or a moiety of an activated ester, for example

(EDC) and the appropriate carboxylic acid). Those compounds are reacted in an inert, organic solvent, for example a halogenated hydrocarbon, e.g. dichloromethane, a nitrile, e.g. acetonitrile, or an aromatic hydrocarbon, e.g. toluene, and in the presence of a base, for example an alkylamine, e.g. triethylamine, an aromatic amine, e.g. pyridine or 4-dimethylaminopyridine (DMAP), with the dione derivatives of formula III, IV, V or VI to form the isomeric enol ethers of formula VII, VIII, IX and X. The esterification occurs at temperatures of from 0°C to 110°C.

The isomerisation of the ester derivatives of formulae VII, VIII, IX and X to form the dione derivatives of formula I (wherein R_{20} , R_{23} , R_{30} and R_{40} are hydroxy) can be carried out, for example, analogously to EP 369 803 in the presence of a base, for example an alkylamine, e.g. triethylamine, a carbonate, e.g. potassium carbonate, and a catalytic amount of DMAP or a cyanide source, for example acetone cyanohydrin or potassium cyanide.

According to Reaction Scheme 1, route b), the desired diones of formula I (wherein R_{20} , R_{23} , R_{30} and R_{40} are hydroxy) can be obtained, for example, analogously to Chem. Lett. 1975, 1045 by means of esterification of the carboxylic acids of formula XI with the dione derivatives of formula III, IV, V or VI in an inert solvent, for example a halogenated hydrocarbon, e.g. dichloromethane, a nitrile, e.g. acetonitrile, or an aromatic hydrocarbon, e.g. toluene, in the presence of a base, for example an alkylamine, e.g. triethylamine, and a coupling agent, for example 2-chloro-1-methyl-pyridinium iodide. The esterification occurs, depending on the solvent used, at temperatures of from 0°C to 110°C and yields first, as described under route a), the isomeric ester of formula I, which can be isomerised, as described under route a), for example in the presence of a base and a catalytic amount of DMAP, or a cyanide source to form the desired dione derivatives of formula I (wherein R_{20} , R_{23} , R_{30} and R_{40} are hydroxy).

Preparation of the compounds of formula I wherein Q is the group Q_5 can be carried out in accordance with Reaction Scheme 2, by reacting the b-diketone derivative of formula XII, for example analogously to Synthesis 1991, 301; ibid. 1988, 793; or Tetrahedron 32, 3055 (1976), with carbon disulfide in the presence of a base, for example a carbonate, e.g. potassium carbonate, a metal hydride, e.g. sodium hydride, or potassium fluoride on aluminium, and an alkylating reagent of formula XIII, wherein X_1 is a leaving group, for example halogen, e.g. iodine, bromine or especially chlorine, $R_{25}OSO_2O$ -, CH_3SO_2O - or

$$\mathrm{CH_3}$$
 $\mathrm{SO_2O}$. The reaction is preferably carried out in a solvent, for example an

amide, e.g. N,N-dimethylformamide (DMF), a sulfoxide, e.g. dimethyl sulfoxide (DMSO), or a nitrile, e.g. acetonitrile. The ketene thioacetal of formula XIV formed is cyclised using hydroxylamine hydrochloride in the presence of a base, for example sodium acetate, in a solvent, for example an alcohol, e.g. ethanol, or an ether, e.g. tetrahydrofuran, to form the compound of formula le wherein Z is S-. The cyclisation reaction is carried out at temperatures of from 0°C to 100°C. The compound of formula le (Z=S) may optionally be oxidised in a manner analogous to standard procedures, for example using peracids, e.g. meta-chloroperbenzoic acid (m-CPBA) or peracetic acid, to form the corresponding sulfones and sulfoxides of formula le (Z = SO- or SO_Z -), wherein the degree of oxidation at the sulfur atom (Z = SO- or SO_Z -) can be controlled by the amount of oxidising agent.

Oxidation to the compound of formula le (Z = SO- or SO_2 -) is carried out as described, for example, in H. O. House, "Modern Synthetic Reactions" W. A. Benjamin, Inc., Menlo Park, California, 1972, pages 334-335 and 353-354.

The activated carboxylic acid derivatives of formula II in Reaction Scheme 1 (route a), wherein X is a leaving group, for example halogen, e.g. bromine, iodine or especially chlorine, can be prepared in accordance with known standard procedures, for example as described in C. Ferri "Reaktionen der organischen Synthese", Georg Thieme Verlag, Stuttgart, 1978, page 461 ff and as shown in the following Reaction Scheme 3.

Reaction Scheme 3

(R)m OH
$$W_1$$
-X, DMF cat., X W_1 -X, DMF X W_1 -X, DMF

According to Reaction Scheme 3, preparation of the compounds of formula II (X = leaving group) or II (X = halogen) is carried out, for example, by using a halogenating agent, for example a thionyl halide, e.g. thionyl chloride or bromide; a phosphorus halide or phosphorus oxyhalide, e.g. phosphorus pentachloride or phosphorus oxychloride or phosphorus pentabromide or phosphoryl bromide; or an oxalyl halide, e.g. oxalyl chloride, or by using a reagent for the formation of an activated ester for example N,N'-dicyclohexyl-carbodiimide (DCC) or N-ethyl-N'-(3-dimethylaminopropyl)carbodiimide (EDC) of formula X. In the compound of formula X, as a halogenating agent, X, for example, is a leaving group, for example halogen, e.g. fluorine, bromine or iodine and especially chlorine, and W₁ is, for example, PCl₂, SOCI, SOBr or CICOCO.

The procedure is optionally carried out in an inert, organic solvent, for example in an aliphatic, halogenated aliphatic, aromatic or halogenated aromatic hydrocarbon, e.g. n-hexane, benzene, toluene, xylenes, dichloromethane, 1,2-dichloroethane or chlorobenzene, at reaction temperatures in the range from -20°C to the reflux temperature of the reaction mixture, preferably at from 40 to 150°C, and in the presence of a catalytic amount of N,N-

dimethylformamide. Such reactions are generally known and described in the literature in a number of variants with respect to the leaving group X.

The compounds of formulae III, IV, V and VI are known and can be prepared in an analogous manner to that described, for example, in WO 92/07837, DE 3 818 958, EP 338 992 and DE 3 902 818.

The compounds of formula XII in Reaction Scheme 2 can be obtained by standard procedures, for example from the corresponding compounds of formula II

wherein R and m are as defined for formula I and X is a leaving group, for example halogen, for example *via* Claisen condensation, or from the compounds of formula II by reaction with a ketocarboxylic acid salt of formula XV

$$COO^{-}M^{+}$$
 $H_{2}C$ (XV),

wherein R_{36} is as defined for formula I and M^{\dagger} is an alkali metal ion (cf., for example, WO 96/26192).

The compounds of formulae II and XI are known and can be prepared in an analogous manner to that described, for example, in WO 97/46530, Heterocycles, 48, 779 (1998), Heterocycles, 46, 129 (1997) or Tetrahedron Letters, 1749 (1998).

For the preparation of all further compounds of formula I functionalised according to the definition of (R)_m, a large number of known standard procedures, for example alkylation, halogenation, acylation, amidation, oximation, oxidation and reduction, are available, the choice of a suitable preparation procedure being governed by the properties (reactivities) of

the substituents in the respective intermediates. Examples of such reactions are given in WO 97/46353.

All further compounds falling within the scope of formula I can be prepared by simple means, taking into account the chemical properties of the pyridyl and \overline{Q} moieties.

The end products of formula I can be isolated in customary manner by concentration or evaporation of the solvent and can be purified by recrystallisation or trituration of the solid residue in solvents in which they are not readily soluble, such as ethers, aromatic hydrocarbons or chlorinated hydrocarbons, by distillation or by means of column chromatography and a suitable eluant.

Furthermore, the person skilled in the art will be familiar with the sequence in which certain reactions should advantageously be performed in order to avoid possible subsidiary reactions.

Where synthesis is not directed at the isolation of pure isomers, the product may be in the form of a mixture of two or more isomers. The isomers can be separated according to methods known *per se*.

Preparation Examples: '

Example P1: Preparation of 4-hydroxy-3-(2-methyl-6-trifluoromethyl-pyridine-3-carbonyl)-bicyclo[3.2.1]oct-3-en-2-one:

6.68 g (0.0305 mol) of 2-methyl-6-trifluoromethyl-nicotinic acid methyl ester (prepared in the manner described in Heterocycles, 46, 129 (1997)) are dissolved in 250 ml of methanol/water (3:1 mixture) and 1.92 g (0.046 mol) of lithium hydroxide hydrate are added in portions at 22°C. After 4 hours at 22°C, the reaction mixture is added to ethyl acetate and 2N hydrochloric acid; the organic phase is washed three times with water, dried with sodium sulfate and concentrated by evaporation, and the residue is triturated with a small amount of hexane. After filtering, 5.69 g (90 % of theory) of the expected 2-methyl-6-trifluoromethyl-nicotinic acid having a melting point of 147-149°C are obtained.

The 2-methyl-6-trifluoromethyl-nicotinic acid (2.0 g, 0.0098 mol) obtained is dissolved in 20 ml of oxalyl chloride. Three drops of dimethylformamide are added and the mixture is refluxed for 1 hour. The mixture is then concentrated using a rotary evaporator and the residue (2-methyl-6-trifluoromethyl-nicotinoyl chloride) is taken up in 30 ml of methylene

chloride. At 0°C, 2.7 ml (0.0196 mol) of triethylamine and 0.12 g (0.00098 mol) of dimethylaminopyridine are added, and then 1.49 g (0.0108 mol) of bicyclo[3.2.1]oct-2,4-dione. dissolved in 20 ml of methylene chloride, are added dropwise. After 3 hours at 22°C, the reaction mixture is extracted by shaking with 2N hydrochloric acid. The separated methylene chloride phase is washed with water and then extracted by shaking with 10 % aqueous sodium bicarbonate solution, dried over sodium sulfate and concentrated by evaporation. 3.18 g (100 % of theory) of 2-methyl-6-trifluoromethyl-nicotinic acid 4-oxo-bicyclo[3.2.1]oct-2en-2-yl ester are obtained in the form of an oil, which can be used further without purification. 3.02 g (0.0093 mol) of methyl-6-trifluoromethyl-nicotinic acid 4-oxo-bicyclo[3.2.1]oct-2-en-2yl ester and 1.9 ml (0.0136 mol) of triethylamine are dissolved in 45 ml of acetonitrile. At 22°C, 0.01 ml of acetone cyanohydrin is added. After 18 hours at 22°C, the reaction mixture is poured onto a mixture of water and 2N hydrochloric acid and extracted by shaking with ethyl acetate. The ethyl acetate phase is washed with water and then with brine, dried over sodium sulfate and concentrated by evaporation, and the residue is dissolved in a small amount of warm acetone. On being left to stand, the product crystallises out. After filtering, 0.99 g (33 % of theory) of the expected 4-hydroxy-3-(2-methyl-6-trifluoromethyl-pyridine-3carbonyl)-bicyclo[3.2.1]oct-3-en-2-one is obtained in the form of white crystals (m.p. 75-77°C).

Example P2: (5-Cyclopropyl-3-methylsulfanyl-isoxazol-4-yl)-(2-methyl-6-trifluoromethyl-pyridin-3-yl)-methanone:

14.8 g (0.080 mol) of 3-cyclopropyl-3-oxo-propionic acid tert-butyl ester are dissolved in 25 ml of MeOH and 1.93 g (0.080 mol) of magnesium are added. 7 ml of carbon tetrachloride are added dropwise while cooling in an ice bath and the reaction mixture is stirred at 22°C for 1 hour to complete the reaction. After concentrating by evaporation, the residue is suspended in 100 ml of acetonitrile and, at 22°C, 16.31 g (0.073 mol) of 2-methyl-6-trifluoromethyl-nicotinoyl chloride (prepared in the manner described in Example P1), dissolved in 50 ml of acetonitrile, are added dropwise. After 6 hours, the reaction mixture is taken up in ethyl acetate and washed with saturated sodium bicarbonate solution. The separated ethyl acetate phase is washed with water, dried over sodium sulfate and concentrated by evaporation. The residue is dissolved in 160 ml of methylene chloride and 10 ml of trifluoroacetic acid are added dropwise at 22°C. After 18 hours, the reaction mixture is poured into water and extracted with methylene chloride. The methylene chloride phase is washed with water and then with brine, dried over sodium sulfate and concentrated by

evaporation. 17.3 g (88 % of theory) of 1-cyclopropyl-3-(2-methyl-6-trifluoromethyl-pyridin-3-yl)-propane-1,3-dione are obtained in the form of an oil, which can be used further without purification.

The 1-cyclopropyl-3-(2-methyl-6-trifluoromethyl-pyridin-3-yl)-propane-1,3-dione (15.0 g, 0.055 mol) obtained is dissolved in 150 ml of dimethylformamide and $\overline{50}$ g of potassium fluoride on an aluminium oxide support (Alox) (0.0055 mol/g, 0.276 mol) are added in portions at 0°C. After 5 minutes, 6.7 g (0.088 mol) of carbon disulfide are added. After 2 hours, 23.6 g (0.166 mol) of methyl iodide are added dropwise and the reaction mixture is heated at 22°C. After 2 hours the Alox is filtered off, the filtrate is poured into water and extracted by shaking with ethyl acetate. The ethyl acetate phase is washed with water and then with brine, dried over sodium sulfate and concentrated by evaporation. The residue is chromatographed on silica gel (eluant: ethyl acetate/hexane 15/1). 12.0 g (60 % of theory) of 2-(bis-methylsulfanyl-methylene)-1-cyclopropyl-3-(2-methyl-6-trifluoromethyl-pyridin-3-yl)-propane-1,3-dione are obtained in the form of a solid substance.

12.0 g (0.033 mol) of the product obtained are suspended in 120 ml of ethanol together with 5.4 g (0.066 mol) of anhydrous sodium acetate. 4.6 g (0.066 mol) of hydroxylamine hydrochloride are added and the batch is reacted at 22°C for 5 hours. A further 2.7 g of anhydrous sodium acetate and 2.3 g of hydroxylamine hydrochloride are then added. After 18 hours, the reaction mixture is diluted with water and extracted with ethyl acetate. The ethyl acetate phase is washed with water and then with brine, dried over sodium sulfate and concentrated by evaporation. On triturating with a small amount of ethyl acetate, 9.0 g (79.5 %) of the desired product are obtained in the form of white crystals (m.p. 103-104°C).

Example P3: (5-Cyclopropyl-3-methylsulfinyl-isoxazol-4-yl)-(2-methyl-6-trifluoromethyl-pyridin-3-yl)-methanone

1.50 g (0.0043 mol) of (5-cyclopropyl-3-methylsulfanyl-isoxazol-4-yl)-(2-methyl-6-trifluoro-methyl-pyridin-3-yl)-methanone are dissolved in 30 ml of acetone/water (2:1 mixture) and 1.02 g (0.0048 mol) of sodium metaperiodate are added in portions at 22°C. After 5 hours, the reaction mixture is concentrated by evaporation using a rotary evaporator. The residue is taken up in water and ethyl acetate. The ethyl acetate phase is dried over sodium sulfate and concentrated by evaporation. The residue is chromatographed on silica gel (eluant: ethyl acetate/hexane 3/1). 0.8 g (51 %) of the desired product is obtained in the form of white crystals (m.p. 96-97°C).

Example P4: Preparation of 3-hydroxy-4,4-dimethyl-2-(2-methyl-6-trifluoromethyl-pyridine-3-carbonyl)-cyclohex-2-enone (A2-B24):

6.68 g (0.0305 mol) of 2-methyl-6-trifluoromethyl-nicotinic acid methyl ester (prepared in the manner described in Heterocycles, 46, 129 (1997)) are dissolved in 250 ml of methanol/water (3:1 mixture) and 1.92 g (0.046 mol) of lithium hydroxide hydrate are added in portions at a temperature of 22°C. After 4 hours at 22°C, the reaction mixture is added to ethyl acetate and 2N hydrochloric acid; the organic phase is washed three times with water, dried over sodium sulfate and concentrated by evaporation, and the residue is triturated with a small amount of hexane. After filtering, 5.69 g (90 % of theory) of the expected 2-methyl-6-trifluoromethyl-nicotinic acid having a melting point of 147-149°C are obtained.

The 2-methyl-6-trifluoromethyl-nicotinic acid (1.026 g, 0.005 mol) obtained is dissolved in 20 ml of oxalyl chloride. Three drops of dimethylformamide are added and the mixture is refluxed for 1 hour. The mixture is then concentrated by evaporation using a rotary evaporator and the residue (2-methyl-6-trifluoromethyl-nicotinoyl chloride) is taken up in 100 ml of methylene chloride. At a temperature of 0°C, 1.6 ml (0.0115 mol) of triethylamine and 0.7 g (0.005 mol) 4,4-dimethyl-cyclohexane-1,3-dione are added. After 2 hours at a temperature of 22°C, the solvent is removed using a vacuum rotary evaporator, the residue that remains is dissolved in 55 ml of acetonitrile and, for rearrangement of the intermediate, 0.15 ml (0.0016 mol) of acetone cyanohydrin and 0.79 ml (0.0057 mol) of triethylamine are added. After stirring for four hours at room temperature, the reaction solution is concentrated by evaporation. The syrup that remains is chromatographed on silica gel. The light-yellow, viscous oil obtained by eluting with a mixture of toluene, ethyl alcohol, dioxane, triethylamine and water (100:40:20:20:5 parts by volume) (Rf = 0.39 based on the said mixture as mobile phase) is dissolved in dichloromethane and washed with 75 ml of hydrochloric acid 5 % and 75 ml of water in succession. After drying the organic solution with Na₂SO₄, concentration by evaporation yields 1.05 g (63 %) of pure title compound.

 1 H NMR (d₆-DMSO, δ in ppm): 1.342, s, 6H: 2.088, t, J 9Hz, 2H: 2.685, s, 3H: 2.982, t, J 9Hz, 2H:8.030, d, J 8.1Hz, IH: 8.094, d, J 8.1Hz, 1H.

Example P5: Preparation of 5-methyl-5-trifluoromethyl-cyclohexane-1,3-dione (Example B1066):

0.64 g of sodium is introduced into 40 ml of ethanol, 3.23 ml of acetic acid methyl ester and 4.9 g of 4,4,4-trifluoro-3-methyl-but-2-enoic acid isopropyl ester are incorporated and the

mixture is heated at boiling temperature for 18 hours. After extraction with dilute hydrochloric acid against ethyl acetate, concentration by evaporation is carried out. The non-purified 2-methyl-4,6-dioxo-2-trifluoromethyl-cyclohexanecarboxylic acid methyl ester that remains behind is esterified in the presence of 9.1 g of sodium hydroxide in a mixture of methanol and water at boiling temperature. The mixture is then acidified with hydrochloric acid and extracted with fresh ethyl acetate. After recrystallisation (ethyl acetate), pure 5-methyl-5-trifluoromethyl-cyclohexane-1,3-dione having a melting point of 150-152°C is obtained.

Example P6: Preparation of 2-hydroxy-1-methoxy-5-methyl-4-oxo-cyclohex-2-enecarboxylic acid methyl ester (B1069):

A 30 % solution of 35.8 g of sodium methanolate is made up in 65 ml of dimethyl sulfoxide and, over a period of 20 minutes, is treated at a temperature of from 30 to 35°C with a mixture of 16.7 g of 3-methyl-3-buten-2-one and 32.4 g of methoxymalonic acid dimethyl ester. The mixture is stirred for 1 hour at a temperature of 35°C, acidified with hydrochloric acid and then extracted several times with dichloromethane. The organic phases are washed with water, dried and concentrated. By crystallising from hot ethyl acetate and hexane, pure 2-hydroxy-1-methoxy-5-methyl-4-oxo-cyclohex-2-enecarboxylic acid methyl ester having a melting point of 117-117.5°C is obtained.

Example P7: Preparation of 2-hydroxy-1-methoxy-5-methyl-3-(2-methyl-6-trifluoromethyl-pyridine-3-carbonyl)-4-oxo-cyclohex-2-ene-carboxylic acid methyl ester (A2-B1069):

2.23 g of fresh 2-methyl-6-trifluoromethyl-nicotinoyl chloride are added to a mixture of 2.14 g of 2-hydroxy-1-methoxy-5-methyl-4-oxo-cyclohex-2-ene-carboxylic acid methyl ester and 2.02 g of triethylamine in 30 ml of acetonitrile. After about 30 minutes, 0.065 g of potassium cyanide is added and the batch is stirred for 18 hours. The batch is then extracted at pH 2 with water against ethyl acetate, dried over magnesium sulfate and concentrated by evaporation. By filtering over silica gel (mobile phase: ethyl acetate/methanol/triethylamine 85:10:5), pure 2-hydroxy-1-methoxy-5-methyl-3-(2-methyl-6-trifluoromethyl-pyridine-3-carbonyl)-4-oxo-cyclohex-2-enecarboxylic acid methyl ester is obtained in the form of a viscous oil.

Example P8: Preparation of 3-hydroxy-4-methoxy-6-methyl-2-(2-methyl-6-trifluoromethyl-pyridine-3-carbonyl)-cyclohex-2-enone (A2-B1070):

0.586 g of potassium hydroxide is added to 1.4 g of 2-hydroxy-1-methoxy-5-methyl-3-(2-methyl-6-trifluoromethyl-pyridine-3-carbonyl)-4-oxo-cyclohex-2-enecarboxylic acid methyl ester in dioxane/water (5:3) and the batch is stirred for 3 hours. The batch is then acidified (pH 3) and extracted with fresh ethyl acetate. The crude product is purified by chromatography analogously to Example P7. 3-Hydroxy-4-methoxy-6-methyl-2-(2-methyl-6-trifluoromethyl-pyridine-3-carbonyl)-cyclohex-2-enone is obtained in the form of a viscous oil (as a mixture of 3 tautomeric forms, according to ¹H-NMR).

The compounds listed in the following Tables can also be prepared in an analogous manner and using methods described in the general Reaction Schemes 1 and 2 and in the references mentioned therein. In the following Tables Ph is the phenyl group and CC is an ethyne group.

Table 1: Compounds of formula lb:

$$\begin{array}{c|c} R_{78} & O & O \\ \hline R_{76} & N_{R_{75}} & O & O \\ \hline \end{array}$$
 (Ib)

Compd.	R 75	R 76	R 77	R 78	m.p. (°C)
1.001	CH₃	CF ₃	Н	Н	75-77
1.002	CH₃CH₂	CF ₃	н	. н	
1.003	(CH₃)₂CH	CF ₃	Н	н	111-112
1.004	CH ₃ (CH ₂) ₃	CF₃	Н	Н	
1.005	Ph	CF₃	Н	н	oil
1.006	CH₂Br	CF ₃	H	Н	
1.007	CH ₂ OCH ₃	CF ₃	Н	· H	124-126
1.008	CH₂SMe	CF ₃	Н	Н	oil
1.009	CH₂SO₂Me	CF ₃	Н	н	55-55
1.010	SCH ₃	CF ₃	Н	Н	

Compd.	R 75	R 76	R ₇₇	R 78	m.p. (°C)
no.					
1.011	SOCH₃	CF ₃	Н	н	
1.012	SO₂CH₃	CF ₃	Н	Н	
1.013	SPh	CF ₃	н	Н	-
1.014	SOPh	CF ₃	Н	Н	•
1.015	SO₂Ph	CF ₃	Н	Н	
1.016	CH ₃	CF ₃ CF ₂	Н	Н	
1.017	CH ₃ CH ₂	CF ₃ CF ₂	Н	Н	
1.018	(CH₃)₂CH	CF ₃ CF ₂	Н	Н	
1.019	CH ₃ (CH ₂) ₃	CF ₃ CF ₂	Н	Н	
1.020	Ph	CF ₃ CF ₂	Н	Н	
1.021	CH₂Br	CF ₃ CF ₂	Н	Н	
1.022	CH ₂ OCH ₃	CF ₃ CF ₂	Н	Н	
1.023	CH₂SMe	CF ₃ CF ₂	Н	Н	
1.024	CH ₂ SO ₂ Me	CF ₃ CF ₂	Н	Н	
1.025	SCH₃	CF ₃ CF ₂	H	Н	
1.026	SOCH₃	CF ₃ CF ₂	Н	Н	
1.027	SO ₂ CH ₃	CF ₃ CF ₂	Н	Н	
1.028	SPh	CF ₃ CF ₂	Н	Н	
1.029	SOPh	CF ₃ CF ₂	Н	Н	
1.030	SO₂Ph	CF ₃ CF ₂	Н	Н	•
1.031	CH₃	CHF ₂	Н	Н	
1.032	CH₃CH₂	CHF ₂	Н	Н	
1.033	(CH₃)₂CH	CHF ₂	Н	Н	
1.034	CH ₃ (CH ₂) ₃	CHF ₂	Н	Н	
1.035	Ph	CHF ₂	Н	Н	
1.036	CH₂Br	CHF ₂	Н	Н	
1.037	CH₂OCH₃	CHF ₂	Н	Н	
1.038	CH₂SMe	CHF ₂	Н	Н	
1.039	CH ₂ SO ₂ Me	CHF ₂	Н	н	
1.040	SCH₃	CHF ₂	Н	Н	
1.041	SOCH ₃	CHF ₂	Н	Н	
1.042	SO₂CH₃	CHF ₂	Н	Н	

Compd.	R ₇₅	R 76	R 77	R 78	m.p. (°C)
n.					
1.043	SPh	CHF ₂	Н	Н	
1.044	SOPh	CHF ₂	н	Н	
1.045	SO₂Ph	CHF ₂	Н	Н	-
1.046	CH₃	CF ₃	CH₃	Н	
1.047	CH₃CH₂	CF ₃	CH₃	н	
1.048	(CH₃)₂CH	CF ₃	CH₃	Н	
1.049	CH ₃ (CH ₂) ₃	CF₃	CH₃	H	
1.050	Ph	CF₃	CH₃	H	
1.051	CH₂Br	CF ₃	CH₃	Н	
1.052	CH₂OCH3	CF ₃	CH₃	Ή	
1.053	CH₂SMe	CF ₃	CH ₃	Н	
1.054	CH₂SO₂Me	CF ₃	CH₃	Ħ	
1.055	SCH₃	CF ₃	СН₃	н	•
1.056	SOCH₃	CF ₃	CH₃	Н	
1.057	SO ₂ CH ₃	CF ₃	CH₃	Н	
1.058	SPh	CF ₃	CH₃	Н	
1.059	SOPh	CF ₃	CH ₃	Н	
1.060	SO₂Ph	CF ₃	CH ₃	Н	
1.061	CH₃	CF ₃ CF ₂	СН₃	Н	
1.062	CH₃CH₂	CF ₃ CF ₂	СН₃	Н	
1.063	(CH₃)₂CH	CF ₃ CF ₂	CH ₃	Н	
1.064	CH ₃ (CH ₂) ₃	CF ₃ CF ₂	CH ₃	Н	
1.065	Ph	CF ₃ CF ₂	CH ₃	Н	
1.066	CH₂Br	CF ₃ CF ₂	CH₃	Н	
1.067	CH ₂ OCH ₃	CF ₃ CF ₂	СН₃	Н	
1.068	CH₂SMe	CF ₃ CF ₂	CH₃	Н	
1.069	CH ₂ SO ₂ Me	CF ₃ CF ₂	CH₃	Н	
1.070	SCH₃	CF ₃ CF ₂	СН₃	Н	
1.071	SOCH₃	CF ₃ CF ₂	СН3	Н	
1.072	SO₂CH₃	CF ₃ CF ₂	CH ₃	Н	
1.073	SPh	CF ₃ CF ₂	CH₃	Н	
1.074	SOPh	CF ₃ CF ₂	CH₃	Н	

Compd.	R 75	R 76	R 77	R 78	m.p. (°C)
n.					
1.075	SO₂Ph	CF₃CF₂	CH ₃	Н	
1.076	CH₃	CHF ₂	CH ₃	Н	
1.077	CH ₃ CH ₂	CHF ₂	CH₃	Н	***
1.078	(CH ₃) ₂ CH	CHF ₂	CH ₃	Н	
1.079	$CH_3(CH_2)_3$	CHF ₂	CH ₃	н	
1.080	Ph	CHF ₂	CH₃	H	
1.081	CH ₂ Br	CHF ₂	CH₃	Н	
1.082	CH₂OCH₃	CHF ₂	CH ₃	Н	
1.083	CH₂SMe	CHF ₂	CH ₃	Н	
1.084	CH₂SO₂Me	CHF ₂	СН₃	Н	
1.085	SCH₃	CHF ₂	CH ₃	Н	
1.086	SOCH ₃	CHF ₂	CH₃	Н	
1.087	SO₂CH₃	CHF ₂	CH ₃	Н	
1.088	SPh	CHF ₂	CH ₃	Н	
1.089	SOPh	CHF ₂	СН₃	H	
1.090	SO₂Ph	CHF ₂	CH₃	Н	
1.091	CH₃	CF ₃	Н	CH ₃	92-94
1.092	CH₃CH₂	CF ₃	Н	CH ₃	
1.093	(CH ₃) ₂ CH	CF ₃	Н	CH ₃	
1.094	$CH_3(CH_2)_3$	CF ₃	Н	CH ₃	
1.095	Ph	CF ₃	Н	CH ₃	
1.096	CH₂Br	CF ₃	Н	CH ₃	
1.097	CH₂OCH₃	CF ₃	Н	CH ₃	
1.098	CH₂SMe	CF ₃	H	CH ₃	
1.099	CH₂SO₂Me	CF ₃	Н	CH ₃	
1.100	SCH₃	CF ₃	Н	CH ₃	
1.101	SOCH₃	CF ₃	Н	CH ₃	
1.102	SO ₂ CH ₃	CF ₃	Н	CH ₃	
1.103	SPh	CF ₃	Н	CH₃	
1.104	SOPh	CF ₃	Н	CH ₃	
1.105	SO₂Ph	CF ₃	Н	CH₃	

Table 2: Compounds of formula lc:

Compd.	R 75	R 76	R 77	R 78	m.p.(°C)
,,,,,	*	•			
2.001	СН₃	CF₃	Н	Н	107-109
2.002	CH ₃ CH ₂	CF ₃	н	Н	oil .
2.003	(CH ₃) ₂ CH	CF ₃	н	H	oil
2.004	CH ₃ (CH ₂) ₃	CF ₃	Н	н	
2.005	Ph	CF ₃	Н	Н	oil
2.006	CH₂Br	CF ₃	н	н	
2.007	CH₂OCH₃	CF ₃	Н	н	
2.008	CH₂SMe	CF ₃	Н	н	
2.009	CH ₂ SO ₂ Me .	CF ₃	н	н	
2.010	SCH₃	CF₃	Н	Н	
2.011	SOCH ₃	CF₃	Н	Н	
2.012	SO₂CH₃	CF ₃	Н	Н	
2.013	SPh	CF ₃	H	Н	
2.014	SOPh	CF ₃	Н	Н	
2.015	SO₂Ph	CF₃	Н	Н	
2.016	CH₃	CF ₃ CF ₂	Н	Н	
2.017	CH₃CH₂	CF ₃ CF ₂	Н	Н	
2.018	(CH₃)₂CH	CF ₃ CF ₂	Н	Н	
2.019	CH ₃ (CH ₂) ₃	CF ₃ CF ₂	Н	· H	÷ .
2.020	Ph	CF ₃ CF ₂	Н	Н	•
2.021	CH₂Br	CF ₃ CF ₂	Н	Н	
2.022	CH ₂ OCH ₃	CF ₂ CF ₂	н	н	

Compd.	R 75	R 76	R 77	R 78	m.p.(°C)
no.					
2.023	CH₂SMe	CF ₃ CF ₂	Н	Н	
2.024	CH₂SO₂Me	CF ₃ CF ₂	Н	Н	
2.025	SCH₃	CF ₃ CF ₂	Н	Н	-
2.026	SOCH₃	CF ₃ CF ₂	н	Н	•
2.027	SO₂CH₃	CF ₃ CF ₂	Н	н	
2.028	SPh	CF ₃ CF ₂	Н	Н	
2.029	SOPh	CF ₃ CF ₂	Н	Н	
2.030	SO₂Ph	CF ₃ CF ₂	Н	Н	
2.031	CH₃	CHF ₂	Н	Н	
2.032	CH ₃ CH ₂	CHF ₂	Н	Н	
2.033	(CH ₃) ₂ CH	CHF ₂	Н	Н	
2.034	$CH_3(CH_2)_3$	CHF ₂	H	Н	
2.035	Ph	CHF ₂	Н	Н	
2.036	CH₂Br	CHF ₂	Н	Н	
2.037	CH₂OCH₃	CHF ₂	Н	Н	
2.038	CH₂SMe	CHF ₂	Н	Н	
2.039	CH₂SO₂Me	CHF ₂	Н	Н	
2.040	SCH₃	CHF ₂	Н	Н	
2.041	SOCH₃	CHF ₂	Н	Н	
2.042	SO₂CH₃	CHF ₂	Н	Н	
2.043	SPh	CHF ₂	Н	Н	
2.044	SOPh	CHF ₂	Н	Н	
2.045	SO₂Ph	CHF ₂	Н	Н	
2.046	CH₃	CF ₃	CH ₃	Н	
2.047	CH₃CH₂	CF ₃	CH₃	Н	
2.048	(CH₃)₂CH	CF ₃	CH₃	Н	
2.049	$CH_3(CH_2)_3$	CF ₃	CH ₃	Н	
2.050	Ph	`CF₃	СНз	Н	
2.051	CH₂Br	CF ₃	CH ₃	Н	
2.052	CH₂OCH₃	CF ₃	CH ₃	Н	
2.053	CH₂SMe	CF ₃	CH ₃	Н	
2.054	CH ₂ SO ₂ Me	CF ₃	CH₃	Н	

Compd.	R 75	R 76	R 77	R 78	m.p.(°C)
no.					
2.055	SCH₃	CF ₃	CH₃	н	
2.056	SOCH₃	CF ₃	CH₃	н	
2.057	SO₂CH₃	CF ₃	CH₃	Н	-
2.058	SPh	CF ₃	CH₃	Н	
2.059	SOPh	CF₃	CH₃	Н	,
2.060	SO₂Ph	CF₃	CH₃	Н	
2.061	CH₃	CF ₃ CF ₂	CH₃	Н	
2.062	CH₃CH₂	CF ₃ CF ₂	CH₃	Н	
2.063	(CH ₃) ₂ CH	CF ₃ CF ₂	CH₃	Н	
2.064	$CH_3(CH_2)_3$	CF ₃ CF ₂	СН₃	н	•
2.065	Ph	CF ₃ CF ₂	СН₃	Н	
2.066	CH₂Br	CF ₃ CF ₂	CH ₃	H	
2.067	CH₂OCH₃	CF ₃ CF ₂	CH₃	Н	
2.068	CH₂SMe	CF ₃ CF ₂	CH ₃	Н	
2.069	CH₂SO₂Me	CF ₃ CF ₂	CH₃	. H	
2.070	SCH₃	CF ₃ CF ₂	CH₃	Н	
2.071	SOCH ₃	CF ₃ CF ₂	СН₃	Н	
2.072	SO₂CH₃	CF ₃ CF ₂	CH₃	Н	•
2.073	SPh	CF ₃ CF ₂	CH₃	Н	
2.074	SOPh	CF ₃ CF ₂	СНз	Н	
2.075	SO₂Ph	CF ₃ CF ₂	СН₃	Н	
2.076	CH ₃	CHF ₂	СН₃	Н	
2.077	CH₃CH₂	CHF ₂	CH ₃	Н	
2.078	(CH₃)₂CH	CHF ₂	· CH ₃	Н	
2.079	$CH_3(CH_2)_3$	CHF ₂	CH₃	Н	
2.080	Ph	CHF ₂	CH₃	Н	
2.081	CH₂Br	CHF ₂	CH₃	Н	
2.082	CH₂OCH₃	CHF ₂	CH₃	Н	
2.083	CH₂SMe	CHF ₂	CH ₃	H	
2.084	CH ₂ SO ₂ Me	CHF ₂	CH ₃	Н	
2.085	SCH₃	CHF ₂	CH ₃	Н	
2.086	SOCH ₃	CHF ₂	CH₃	Н	

Compd.	R 75	R 76	R ₇₇	R 78	m.p.(°C)
no.					
2.087	SO₂CH₃	CHF ₂	CH ₃	Н	
2.088	SPh	CHF ₂	CH ₃	Н	
2.089	SOPh	CHF ₂	CH ₃	Н	-
2.090	SO₂Ph	CHF ₂	CH ₃	Н	
2.091	CH₃	CF₃	Н	CH₃	
2.092	CH₃CH₂	CF ₃	Н	CH₃	
2.093	(CH₃)₂CH	CF ₃	Н	CH₃	
2.094	$CH_3(CH_2)_3$	CF ₃	Н	CH ₃	
2.095	Ph	CF₃	Н	CH ₃	
2.096	CH₂B r	CF ₃	Н	CH₃	
2.097	CH₂OCH₃	CF ₃	Н	СН₃	
2.098	CH₂SMe	CF₃	Н	CH ₃	
2.099	CH ₂ SO ₂ Me	CF ₃	Н	CH ₃	
2.100	SCH₃	CF ₃	Н	CH ₃	
2.101	SOCH₃	CF₃	н	CH ₃	
2.102	SO₂CH₃	CF ₃	Н	CH ₃	
2.103	SPh	CF ₃	Н	CH ₃	
2.104	SOPh	CF ₃	H	CH ₃	
2.105	SO₂Ph	CF ₃	Н	CH₃	

Table 3: Compounds of formula Id:

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Compd. R 75 R 76 R 77 R 78 m.p.(°C) no.

Compd.	R 75	R 76	R ₇₇	R 78	m.p.(°C)
no.					
3.001	CH₃	CF ₃	Н	Н	
3.002	CH₃CH₂	CF₃	Н	Н	-
3.003	(CH₃)₂CH	CF ₃	Н	Н	
3.004	$CH_3(CH_2)_3$	CF ₃	Н	Н	
3.005	Ph	CF ₃	Н	Н	
3.006	CH₂Br	CF ₃	Н	Н	
3.007	CH₂OCH₃	CF ₃	Н	Н	
3.008	CH₂SMe	CF ₃	Н	, H,	-
3.009	CH ₂ SO ₂ Me	CF ₃	Н	Н	
3.010	SCH₃	CF ₃	Н	Н	
3.011	SOCH₃	CF₃	н	Н	•
3.012	SO₂CH₃	CF₃	Н	Н	
3.013	SPh	CF₃	Н	Н	
3.014	SOPh	CF ₃	Н	Н	
3.015	SO₂Ph	CF ₃	Н	Н	
3.016	CH₃	CF ₃ CF ₂	\mathbf{H}_{\geq}	Н	
3.017	CH₃CH₂	CF ₃ CF ₂	Н	н	
3.018	(CH₃) ₂ CH	CF ₃ CF ₂	Н	Н	-
3.019	CH ₃ (CH ₂) ₃	CF ₃ CF ₂	H	Н	
3.020	Ph	CF ₃ CF ₂	H	н	
3.021	CH₂Br	CF ₃ CF ₂	Н	Н	
3.022	CH₂OCH₃	CF ₃ CF ₂	Н	Н	
3.023	CH₂SMe	CF ₃ CF ₂	Н	Н	
3.024	CH ₂ SO ₂ Me	CF ₃ CF ₂	Н .	Н	
3.025	SCH₃	CF ₃ CF ₂	Н	Н	
3.026	SOCH₃	CF ₃ CF ₂	Н	Н	
3.027	SO₂CH₃	CF ₃ CF ₂	н	Н	
3.028	SPh	CF ₃ CF ₂	H	Η.	
3.029	SOPh	CF ₃ CF ₂	Н	. Н	
3.030	SO₂Pħ	CF ₃ CF ₂	Н	Н	
3.031		CHF ₂	Н	Н	

Compd.	R ₇₅	R 76	R 77	R 78	m.p.(°C)
no.					
3.032	CH ₃ CH ₂	CHF ₂	Н	Н	
3.033	(CH ₃) ₂ CH	CHF ₂	Н	Н	
3.034	CH ₃ (CH ₂) ₃	CHF ₂	Н	Н	-
3.035	Ph	CHF ₂	Н	Н	
3.036	CH₂Br	CHF ₂	Н	Н	
3.037	CH₂OCH₃	CHF ₂	Н	Н	1
3.038	CH₂SMe	CHF ₂	Н	H	
3.039	CH₂SO₂Me	CHF ₂	Н	Н	
3.040	SCH₃	CHF ₂	Н	Η .	
3.041	SOCH ₃	CHF ₂	Н	Н	
3.042	SO ₂ CH ₃	CHF ₂	Н	Н	
3.043	SPh	CHF ₂	Н	н ·	
3.044	SOPh	CHF ₂	Н	н	
3.045	SO ₂ Ph	CHF ₂	Н	Н	
3.046	CH₃	CF ₃	CH₃	Н	
3.047	CH₃CH₂	CF ₃	CH ₃	Н	
3.048	(CH₃)₂CH	CF ₃	CH₃	Н	
3.049	CH ₃ (CH ₂) ₃	CF ₃	CH ₃	Н	
3.050	Ph	CF ₃	CH ₃	H	
3.051	CH₂Br	CF ₃	CH ₃	Н	
3.052	CH ₂ OCH ₃	CF ₃	СН₃	Н	× .
3.053	CH₂SMe	CF ₃	CH₃	Н	
3.054	CH₂SO₂Me	CF ₃	СНз	Н	
3.055	SCH₃	CF ₃	CH₃	Н	
3.056	SOCH ₃	CF ₃	CH₃	Н	
3.057	SO₂CH₃	CF ₃	CH₃	Н	
3.058	SPh	CF ₃	СН₃	Н	
3.059	SOPh ·	CF ₃	CH₃	Н	
3.060	SO₂Ph	CF ₃	CH₃	Н	
3.061	CH₃	CF₃CF₂	CH₃	H	
3.062	CH₃CH₂	CF₃CF₂	CH ₃	Н	
3.063	(CH ₃) ₂ CH	CF ₃ CF ₂	CH ₃	Н	

Compd.	R 75	R 76	R 77	R ₇₈	m.p.(°C)
no.				76	p.(0)
3.064	CH ₃ (CH ₂) ₃	CF ₃ CF ₂	СН₃	Н	
3.065	Ph	CF ₃ CF ₂	CH₃	Н	
3.066	CH₂Br	CF ₃ CF ₂	CH ₃	Н	-
3.067	CH ₂ OCH ₃	CF ₃ CF ₂	CH ₃	Н	
3.068	CH₂SMe	CF ₃ CF ₂	СН₃	Н	
3.069	CH ₂ SO ₂ Me	CF ₃ CF ₂	CH ₃	н	
3.070	SCH₃	CF ₃ CF ₂	CH₃	Н	
3.071	SOCH₃	CF ₃ CF ₂	CH₃	Н	
3.072	SO₂CH₃	CF ₃ CF ₂	CH₃ :	н	
3.073	SPh	CF ₃ CF ₂	CH ₃	н	
3.074	SOPh	CF ₃ CF ₂	СН₃	Н	
3.075	SO₂Ph	CF ₃ CF ₂	CH₃	H	
3.076	CH₃	CHF ₂	СН₃	н .	
3.077	CH₃CH₂	CHF₂	СН₃	Н	
3.078	(CH₃)₂CH	CHF ₂	CH₃	Н	
3.079	$CH_3(CH_2)_3$	CHF ₂	СН₃	Н	
3.080	Ph	CHF ₂	CH₃	н	
3.081	CH₂Br	CHF ₂	CH₃	н	
3.082	CH₂OCH₃	CHF ₂	СН₃	н	
3.083	CH₂SMe	CHF ₂	CH ₃	Н	
3.084	CH₂SO₂Me	CHF ₂	СН₃	Н	
3.085	SCH₃	CHF₂	CH ₃	Н	
3.086	SOCH ₃	CHF ₂	CH ₃	Н	
3.087	SO₂CH₃	CHF ₂	CH ₃	Н	
3.088	SPh	CHF ₂	CH₃	Н	
3.089	SOPh	CHF ₂	CH ₃	H	
3.090	SO₂Ph	CHF ₂	CH ₃	Н	
3.091	CH₃	CF ₃	Н	СН₃	
3.092	CH₃CH₂	CF ₃	Н	CH₃	
3.093	(CH₃)₂CH	CF ₃	н	CH₃	
3.094	CH ₃ (CH ₂) ₃	CF ₃	Н	CH₃	
3.095	<u>P</u> h	CF ₃	Н	CH₃	

Compd.	R 75	R 76	R 77	R 78	m.p.(°C)
no.					
3.096	CH₂Br	CF ₃	Н	CH ₃	
3.097	CH₂OCH₃	CF ₃	Н	CH ₃	
3.098	CH₂SMe	CF ₃	Н	CH ₃	_
3.099	CH₂SO₂Me	CF ₃	Н	CH₃	
3.100	SCH₃	CF ₃	H	CH₃	
3.101	SOCH₃	CF ₃	Н	CH ₃	
3.102	SO₂CH₃	CF ₃	Н	CH ₃	
3.103	SPh	CF ₃	Н	CH ₃	
3.104	SOPh	CF ₃	Н	CH ₃	•
3.105	SO₂Ph	CF ₃	Н	CH₃	

Table 4: Compounds of formula le:

Compd.	R 75	R 76	Rπ	R 78	Z	m.p.(°C)
4.001	CH ₃	CF ₃	Н	Н	S	103-104
4.002	CH₃CH₂	CF ₃	Н	Н	S	
4.003	(CH ₃) ₂ CH	CF ₃	Н	Н	S	
4.004	$CH_3(CH_2)_3$	CF ₃	Н	Н	S	
4.005	Ph	CF ₃	Н	н	S	
4.006	CH₂Br	CF ₃	Н	Н	S	
4.007	CH₂OCH₃	CF ₃	Н	Н	S	
4.008	CH₂SMe	CF ₃	Н	Н	S	

Compd	. R ₇₅	R 76	R 77	R 78	z	m.p.(°C)
no.						. ()
4.009	CH₂SO₂Me	CF₃	Н	н	s	
4.010	SCH₃	CF₃	Н	н	s	
4.011	SOCH₃	CF ₃	Н	Н	S	-
4.012	SO₂CH₃	CF₃	Н	Н	S	
4.013	SPh	CF ₃	н	Н	s	
4.014	SOPh	CF ₃	Н	Н	S	
4.015	SO₂Ph	CF ₃	Н	Н	s	
4.016	CH₃	CF ₃ CF ₂	Н	Н	S	
4.017	CH₃CH₂	CF ₃ CF ₂	Н	н .	S	
4.018	(CH₃)₂CH	CF ₃ CF ₂	Н	H.	S	
4.019	CH ₃ (CH ₂) ₃	CF ₃ CF ₂	Н	Н	s	
4.020	Ph	CF ₃ CF ₂	Н	Н	S	
4.021	CH₂Br	CF ₃ CF ₂	Н	Ĥ	S	
4.022	CH ₂ OCH ₃	CF ₃ CF ₂	Н	н	S	
4.023	CH₂SMe	CF ₃ CF ₂	Н	Н	S	
4.024	CH₂SO₂Me	CF ₃ CF ₂	Н	н	S	
4.025	SCH₃	CF ₃ CF ₂	Н	н	S	
4.026	SOCH ₃	CF ₃ CF ₂	Н	Н	Ş	
4.027	SO₂CH₃	CF ₃ CF ₂	Н	Н	S	
4.028	SPh	CF ₃ CF ₂	H	Н	S	
4.029	SOPh	CF ₃ CF ₂	Н	Н	S	
4.030	SO₂Ph	CF ₃ CF ₂	Н	H	s	
4.031	CH₃	CHF ₂	Н	H	s	
4.032	CH₃CH₂	CHF ₂	Н	Н	S	
4.033	(CH₃)₂CH	CHF ₂	Н	Н	S	
4.034	$CH_3(CH_2)_3$	CHF ₂	Н	H ·	S	
4.035	Ph	CHF ₂	Н	Н	S	
4.036	CH₂Br	CHF ₂	Н	Н	S	
4.037	CH₂OCH₃	CHF ₂	Н	Н	S	
4.038	CH₂SMe	CHF ₂	Н	Н	s	
4.039	CH₂SO₂Me	CHF ₂	н	н	s	
4.040	SCH₃	CHF ₂	н	Н	S	
				_		

Compd.	R 75	R 76	R 77	R 78	Z	m.p.(°C)
no.						
4.041	SOCH₃	CHF ₂	Н	H	S	
4.042	SO ₂ CH ₃	CHF ₂	Н	Н	S	
4.043	SPh	CHF ₂	Н	Н	S	-
4.044	SOPh	CHF ₂	Н	Н	S	
4.045	SO₂Ph	CHF ₂	Н	, Н	S	
4.046	CH ₃	CF ₃	CH₃	Н	S	
4.047	CH₃CH₂	CF ₃	CH₃	Н	S	
4.048	(CH₃)₂CH	CF ₃	СН₃	Н	S	
4.049	CH ₃ (CH ₂) ₃	CF ₃	CH₃	Н	S	•
4.050	Ph	CF ₃	CH₃	Н	S	
4.051	CH₂Br	CF ₃	СН₃	Н	S	
4.052	CH₂OCH₃	CF ₃	CH ₃	Н	S	
4.053	CH₂SMe	CF ₃	CH₃	Н	S	
4.054	CH ₂ SO ₂ Me	CF ₃	CH ₃	н	S	
4.055	SCH₃	CF ₃	CH ₃	Н	S	
4.056	SOCH₃	CF ₃	CH₃	Н	S	
4.057	SO ₂ CH ₃	CF ₃	CH ₃	Н	S	
4.058	SPh	CF ₃	CH ₃	Н	S	
4.059	SOPh	CF ₃	CH ₃	H	S	
4.060	SO₂Ph	CF ₃	CH ₃	Н	S	
4.061	CH₃ .	CF ₃ CF ₂	CH₃	Н	S	
4.062	CH₃CH₂	CF ₃ CF ₂	CH₃	Н	S	
4.063	(CH₃)₂CH	CF₃CF₂	CH₃	Н	S	
4.064	CH ₃ (CH ₂) ₃	CF ₃ CF ₂	CH₃	Н	S.	•
4.065	Ph	CF ₃ CF ₂	CH₃	H	S	
4.066	CH₂Br	CF ₃ CF ₂	CH ₃	Н	S	
4.067	CH ₂ OCH ₃	CF ₃ CF ₂	CH ₃	Н	S	
4.068	CH₂SMe	CF ₃ CF ₂	CH₃	Н	S	
4.069	CH₂SO₂Me	CF ₃ CF ₂	CH ₃	Н	S	
4.070	. SCH₃	CF ₃ CF ₂	CH₃	Н	· s	
4.071	SOCH₃	CF ₃ CF ₂	CH ₃	Н	S	
4.072	SO ₂ CH ₃	CF ₃ CF ₂	CH₃	Н	S	

Compd.	R 75	R 76	R 77	R 78	Z	m.p.(°C)
no.						
4.073	SPh	CF ₃ CF ₂	СН₃	. н	s	
4.074	SOPh	CF ₃ CF ₂	СН₃	Н	S	
4.075	SO₂Ph	CF ₃ CF ₂	СН₃	н	S	_
4.076	CH₃	CHF ₂	СН₃	н	s	
4.077	CH₃CH₂	CHF ₂	СН₃	Н	S	
4.078	(CH₃)₂CH	CHF ₂	СН₃	Н	S	
4.079	CH ₃ (CH ₂) ₃	CHF ₂	СН₃	Н	S	
4.080	Ph	CHF ₂	СН₃	Н	S	
4.081	CH₂Br	CHF ₂	CH ₃	H	s	
4.082	CH ₂ OCH ₃	CHF ₂	CH ₃	н	· S	-
4.083	CH₂SMe	CHF ₂	CH ₃	н	S	
4.084	CH₂SO₂Me	CHF ₂	СНз	Н	S	
4.085	SCH₃	CHF ₂	СН₃	н	S	
4.086	SOCH₃	CHF ₂	CH₃	Н	S	
4.087	SO₂CH₃	CHF ₂	СН₃	Н	s	
4.088	SPh	CHF ₂	СНз	Н	s	
4.089	SOPh	CHF ₂	CH ₃	Н	S .	
4.090	SO₂Ph	CHF ₂	CH ₃	Н	S	
4.091	CH₃	CF ₃	Н	CH₃	S	
4.092	CH₃CH₂	CF₃	H	CH ₃	S	
4.093	(CH ₃) ₂ CH	CF ₃	н	CH ₃	S	
4.094	$CH_3(CH_2)_3$	CF₃	Н	CH ₃	S	
4.095	Ph	CF ₃	Н	CH ₃	S	
4.096	CH₂Br	CF ₃	Н	CH ₃	` S	
4.097	CH₂OCH₃	CF ₃	Н	CH ₃	S	
4.098	CH₂SMe	CF ₃	н	CH ₃	S	
4.099	CH₂SO₂Me	CF ₃	Н	CH ₃	S	
4.100	SCH₃	CF ₃	Н	CH₃	S	
4.101	SOCH ₃	CF ₃	H	CH₃	S	
4.102	SO₂CH₃	CF₃	Н	CH ₃	S	
4.103	SPh	CF ₃	Н	CH ₃	S	
4.104	SOPh	CF ₃	Н	CH₃	S	

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						-
Compd.	R 75	R 76	R 77	R 78	Z	m.p.(°C)
no.						
4.105	SO₂Ph	CF ₃	Н	CH ₃	s	
4.106	CH ₃	CF ₃	Н	Н	so	96-97
4.107	CH₃CH₂	CF ₃	Н	Н	so	-
4.108	(CH₃)₂CH	CF₃	Н	Н	so	
4.109	CH ₃ (CH ₂) ₃	CF ₃	Н	Н	so	
4.110	Ph	CF ₃	Н	Н	so	
4.111	CH₂Br	CF ₃	н	Н	so	
4.112	CH₂OCH₃	CF ₃	Н	Н	so	
4.113	CH₂SMe	CF ₃	Н	н	so	
4.114	CH ₂ SO ₂ Me	CF ₃	Н	н	so	
4.115	SCH₃	CF ₃	Н	Н	so	
4.116	SOCH₃	CF ₃	н	Н	so	
4.117	SO₂CH₃	CF ₃	н	Н	so	
4.118	SPh	CF ₃	н	Н	so	
4.119	SOPh	CF ₃	Н	Н	so	
4.120	SO₂Ph	CF ₃	н	Н	so	
4.121	CH₃	CF ₃ CF ₂	Н	Н	so	
4.122	CH₃CH₂	CF ₃ CF ₂	Н	Н	SO	•
4.123	(CH₃)₂CH	CF ₃ CF ₂	H	Н	so	
4.124	$CH_3(CH_2)_3$	CF ₃ CF ₂	Н	Н	so	
4.125	Ph	CF ₃ CF ₂	Н	Н	SO	
4.126	CH₂Br	CF ₃ CF ₂	H	H ·	SO	
4.127	CH ₂ OCH ₃	CF ₃ CF ₂	H	Н	SO	
4.128	CH ₂ SMe	CF ₃ CF ₂	Н	Н	so	
4.129	CH ₂ SO ₂ Me	CF ₃ CF ₂	Н	Н	SO	
4.130	SCH₃	CF ₃ CF ₂	Н	Н	so	
4.131	SOCH₃	CF ₃ CF ₂	Н	Н	so	
4.132	SO₂CH₃	CF ₃ CF ₂	Н	Н	SO	
4.133	SPh	CF ₃ CF ₂	Н	Н	so	
4.134	SOPh	CF ₃ CF ₂	Н	Н	so	
4.135	SO₂Ph	CF ₃ CF ₂	н	Н	so	
4.136	CH ₃	CHF₂	н	Н	so	

Compd.	R 75	R 76	R ₇₇	R 78	Z	m.p.(°C)
no.						· · · · ·
4.137	CH₃CH₂	CHF ₂	н	н	so	
4.138	(CH ₃) ₂ CH	CHF ₂	Н	Н	so	
4.139	$CH_3(CH_2)_3$	CHF ₂	Н	Н	so	_
4.140	Ph	CHF ₂	Н	Н	SO	
4.141	CH₂Br	CHF ₂	н	Н	so	
4.142	CH₂OCH₃	CHF ₂	Н	Н	SO	
4.143	CH₂SMe	CHF ₂	Н	Н	so	
4.144	CH ₂ SO ₂ Me	CHF ₂	н	Н	so	
4.145	SCH₃	CHF ₂	Н	н	so	
4.146	SOCH ₃	CHF ₂	Н	Н	SO	
4.147	SO₂CH₃	CHF ₂	Н	н	SO	
4.148	SPh	CHF ₂	Н	Н	so	-
4.149	SOPh	CHF ₂	Н	н :	SO	
4.150	SO₂Ph	CHF ₂	н	н	so	
4.151	CH ₃	CF ₃	СН₃	н	so	
4.152	CH₃CH₂	CF ₃	CH₃	Н	so	
4.153	(CH₃)₂CH	CF ₃	СН₃	Н	so	
4.154	$CH_3(CH_2)_3$	CF ₃	СН₃	Н	so	
4.155	Ph	CF ₃	СН₃	Н	so	•
4.156	CH₂Br	CF ₃	CH₃	Н	SO	
4.157	CH₂OCH₃	CF₃	CH₃	Н	SO	
4.158	CH₂SMe	CF ₃	CH ₃	Н	SO	
4.159	CH₂SO₂Me	CF ₃	СН₃	Н	SO	
4.160	SCH₃	CF ₃	CH₃	Н.	SO	
4.161	SOCH ₃	CF ₃	CH₃	Н	SO.	
4.162	SO₂CH₃	CF ₃	CH₃	Н	so	
4.163	SPh	CF₃	СН₃	Н	so	
4.164	SOPh	CF ₃	CH₃	Н	so	
4.165	SO₂Ph	CF ₃	- CH₃	н	so	•
4.166	CH₃	CF ₃ CF ₂	CH₃	Н	SO	
4.167	CH₃CH₂	CF ₃ CF ₂	CH₃	Н	so	
4.168	(CH ₃) ₂ CH	CF ₃ CF ₂	CH ₃	Н	so	

Compd.	R .	R 76	R 77	R 78	Z	m.p.(°C)
no.						
4.169	CH ₃ (CH ₂) ₃	CF ₃ CF ₂	CH₃	Н	so	
4.170	Ph	CF ₃ CF ₂	CH₃	Н	so	
4.171	CH₂Br	CF ₃ CF ₂	CH₃	Н	so	-
4.172	CH₂OCH₃	CF ₃ CF ₂	CH₃	Н	so	
4.173	CH₂SMe	CF ₃ CF ₂	CH₃	Н	SO	
4.174	CH ₂ SO ₂ Me	CF ₃ CF ₂	CH ₃	Н	so	
4.175	SCH₃	CF ₃ CF ₂	CH ₃	Н	so	
4.176	. SOCH₃	CF ₃ CF ₂	CH ₃	Н	so	
4.177	SO₂CH₃	CF ₃ CF ₂	CH ₃	Н	so	
4.178	SPh	CF ₃ CF ₂	CH ₃	Н	so	
4.179	SOPh	CF ₃ CF ₂	CH ₃	Н	so	
4.180	SO ₂ Ph	CF ₃ CF ₂	CH ₃	Н	so	
4.181	CH ₃	CHF ₂	CH₃	Н	so	
4.182	CH₃CH₂	CHF ₂	CH ₃	Н	so	
4.183	(CH ₃) ₂ CH	CHF ₂	CH₃	Н	so	
4.184	CH ₃ (CH ₂) ₃	CHF ₂	CH₃	H	so	
4.185	Ph	CHF ₂	CH ₃	Н	so	
4.186	CH₂Br	CHF ₂	CH ₃	Н	so	
4.187	CH₂OCH₃	CHF ₂	CH ₃	Н	so	
4.188	CH₂SMe	CHF ₂	CH ₃	Н	so	
4.189	CH₂SO₂Me	CHF ₂	CH₃	Н	so	
4.190	SCH₃	CHF ₂	CH₃	Н	so	
4.191	SOCH₃	CHF ₂	CH₃	Н	so	
4.192	SO₂CH ₃	CHF ₂	CH₃	Н	SO	
4.193	SPh	CHF ₂	CH₃	Н	SO	
4.194	SOPh	CHF ₂	CH ₃	Н	SO	
4.195	SO₂Ph	CHF ₂	CH₃	н	SO	
4.196	CH₃	CF ₃	Н	CH₃ '	so	
4.197	CH₃CH₂	CF ₃	Н	CH₃	SO	
4.198	(CH ₃) ₂ CH	CF ₃	Н	CH ₃	SO	
4.199	$CH_3(CH_2)_3$	CF ₃	Н	CH ₃	SO	
4.200	Ph	CF ₃	Н	CH ₃	SO	

Compd.	R 75	R 76	R 77	R 78	z	m.p.(°C)
no.						
4.201	CH₂Br	CF ₃	Н	CH₃	so	
4.202	CH₂OCH₃	CF ₃	Н	CH₃	so	
4.203	CH₂SMe	CF ₃	Н	CH₃	so	-
4.204	CH ₂ SO ₂ Me	CF ₃	Н	CH₃	so	
4.205	SCH₃	CF ₃	Н	CH₃	so	
4.206	SOCH₃	CF ₃	Н	CH₃	so	
4.207	SO ₂ CH ₃	CF ₃	Н	CH₃	so	
4.208	SPh	CF ₃	Н	CH₃	SO	
4.209	SOPh	CF ₃	Н	CH₃	SO	
4.210	SO₂Ph	CF ₃	Н	CH ₃	so	
4.211	CH₃	CF ₃	H	Н	SO ₂	amorph-
		•				ous
4.212	CH ₃ CH ₂	CF ₃ .	Н	Н	SO ₂	
4.213	(CH ₃) ₂ CH	CF ₃	Н	Н	SO ₂	
4.214	$CH_3(CH_2)_3$	CF ₃	Н	Н.	SO ₂	
4.215	Ph	CF ₃	Н	Н	SO ₂	
4.216	CH ₂ Br	CF ₃	Н	Н	SO ₂	
4.217	CH₂OCH₃	CF ₃	Н	Н	SO ₂	
4.218	CH₂SMe	CF ₃	Н	Н	SO ₂	
4.219	CH₂SO₂Me	CF₃	Н	Н	SO ₂	
4.220	SCH₃	CF ₃	Н	Н	SO ₂	
4.221	SOCH ₃	CF ₃	Н	Н	SO ₂	
4.222	SO ₂ CH ₃	CF ₃	Н	Н	SO ₂	•
4.223	SPh	CF ₃	H	н	SO ₂	•
4.224	SOPh	CF ₃	Н	Н	SO ₂	
4.225	SO₂Ph	CF ₃	Н	Н	SO ₂	
4.226	CH₃	CF ₃ CF ₂	Н	Н	SO ₂	
4.227	CH₃CH₂	CF ₃ CF ₂	Н	Н	SO ₂	
4.228	(CH₃)₂CH	CF ₃ CF ₂	H	- н	SO ₂	
4.229	$CH_3(CH_2)_3$	CF ₃ CF ₂	H	Н	SO ₂	
4.230	Ph	CF ₃ CF ₂	Н	Н	SO ₂	
4.231	CH₂Br	CF ₃ CF ₂	Н	Н	SO ₂	

Compd.	R 75	R 76	R 77	R 78	z	m.p.(°C)
no.						
4.232	CH₂OCH₃	CF ₃ CF ₂	Н	Н	SO ₂	
4.233	CH₂SMe	CF₃CF₂	Н	Н	SO ₂	
4.234	CH₂SO₂Me	CF₃CF₂	Н	Н	SO ₂	_
4.235	SCH₃	CF ₃ CF ₂	Н	Н	SO ₂	
4.236	SOCH ₃	CF₃CF₂	Н	Н	SO ₂	•
4.237	SO₂CH₃	CF₃CF₂	Н	Н	SO ₂	
4.238	SPh	CF₃CF₂	Н	Н	SO ₂	
4.239	SOPh	CF ₃ CF ₂	Н	н	SO ₂	
4.240	SO₂Ph	CF₃CF₂	н	Н	SO ₂	
4.241	СН₃	CHF ₂	Н	Н	SO ₂	
4.242	CH₃CH₂	CHF ₂	Н	Н	SO ₂	
4.243	(CH₃)₂CH	CHF ₂	Н	н .	SO ₂	
4.244	$CH_3(CH_2)_3$	CHF ₂	H	Н	SO ₂	
4.245	Ph	CHF ₂	Н	Η	SO ₂	
4.246	CH ₂ Br	CHF ₂	Н	Н	SO ₂	
4.247	CH₂OCH₃	CHF ₂	Н	Н	SO ₂	
4.248	CH ₂ SMe	CHF ₂	Н	Н	SO ₂	
4.249	CH₂SO₂Me	CHF ₂	Н	Н	SO ₂	
4.250	SCH₃	CHF ₂	Н	Н	SO ₂	
4.251	SOCH₃	CHF ₂	Н	Н	SO ₂	
4.252	SO₂CH₃	CHF ₂	Н	Н	SO ₂	
4.253	SPh	CHF ₂	н	Н	SO ₂	
4.254	SOPh	CHF ₂	Н	Н	SO ₂	
4.255	SO₂Ph	CHF ₂	Н	Н	SO ₂	
4.256	CH₃	CF ₃	CH₃	Н	SO ₂	
4.257	CH₃CH₂	CF ₃	CH ₃	Н	SO ₂	
4.258	(CH₃) ₂ CH	CF ₃	CH ₃	Н	SO ₂	
4.259	$CH_3(CH_2)_3$	CF ₃	CH ₃	Н	SO ₂	
4.260	Ph	CF ₃	CH ₃	Н	SO ₂	
4.261	CH₂Br	CF ₃	CH ₃	Н	SO ₂	
4.262	CH₂OCH₃	CF ₃	CH ₃	Н	SO ₂	
4.263	CH₂SMe	CF ₃	CH₃	Н	SO ₂	

no. 4.264 CH ₂ SO ₂ Me CF ₃ CH ₃ H SO ₂ 4.265 SCH ₃ CF ₃ CH ₃ H SO ₂ 4.266 SOCH ₃ CF ₃ CH ₃ H SO ₂ 4.267 SO ₂ CH ₃ CF ₃ CH ₃ H SO ₂ 4.268 SPh CF ₃ CH ₃ H SO ₂ 4.269 SOPh CF ₃ CH ₃ H SO ₂ 4.270 SO ₂ Ph CF ₃ CH ₃ H SO ₂ 4.271 CH ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.272 CH ₃ CH ₂ CF ₃ CF ₂ CH ₃ H SO ₂ 4.273 (CH ₃) ₂ CH CF ₃ CF ₂ CH ₃ H SO ₂ 4.274 CH ₃ (CH ₂) ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.275 Ph CF ₃ CF ₂ CH ₃ H SO ₂ 4.276 CH ₂ Br CF ₃ CF ₂ CH ₃ H SO ₂ 4.277 CH ₂ OCH ₃ CF ₃ CF ₂ CH ₃	Compd.	R 75	R 76	R ₇₇	R 78	Z	m.p.(°C)
4.265 SCH ₃ CF ₃ CH ₃ H SO ₂ 4.266 SOCH ₃ CF ₃ CH ₃ H SO ₂ 4.267 SO ₂ CH ₃ CF ₃ CH ₃ H SO ₂ 4.268 SPh CF ₃ CH ₃ H SO ₂ 4.269 SOPh CF ₃ CH ₃ H SO ₂ 4.270 SO ₂ Ph CF ₃ CH ₃ H SO ₂ 4.271 CH ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.272 CH ₃ CH ₂ CF ₃ CF ₂ CH ₃ H SO ₂ 4.273 (CH ₃) ₂ CH CF ₃ CF ₂ CH ₃ H SO ₂ 4.274 CH ₃ (CH ₂) ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.275 Ph CF ₃ CF ₂ CH ₃ H SO ₂ 4.276 CH ₂ Br CF ₃ CF ₂ CH ₃ H SO ₂ 4.277 CH ₂ OCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.277 CH ₂ OCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.277 CH ₂ OCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂	no.						, ()
4.265 SCH ₃ CF ₃ CH ₃ H SO ₂ 4.266 SOCH ₃ CF ₃ CH ₃ H SO ₂ 4.267 SO ₂ CH ₃ CF ₃ CH ₃ H SO ₂ 4.268 SPh CF ₃ CH ₃ H SO ₂ 4.269 SOPh CF ₃ CH ₃ H SO ₂ 4.270 SO ₂ Ph CF ₃ CH ₃ H SO ₂ 4.271 CH ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.272 CH ₃ CH ₂ CF ₃ CF ₂ CH ₃ H SO ₂ 4.273 (CH ₃) ₂ CH CF ₃ CF ₂ CH ₃ H SO ₂ 4.274 CH ₃ (CH ₂) ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.275 Ph CF ₃ CF ₂ CH ₃ H SO ₂ 4.276 CH ₂ Br CF ₃ CF ₂ CH ₃ H SO ₂ 4.277 CH ₂ OCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.277 CH ₂ OCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.277 CH ₂ OCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂	4.264	CH₂SO₂Me	CF ₃	СН₃	Н	SO ₂	
4.266 SOCH ₃ CF ₃ CH ₃ H SO ₂ 4.267 SO ₂ CH ₃ CF ₃ CH ₃ H SO ₂ 4.268 SPh CF ₃ CH ₃ H SO ₂ 4.269 SOPh CF ₃ CH ₃ H SO ₂ 4.270 SO ₂ Ph CF ₃ CH ₃ H SO ₂ 4.271 CH ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.272 CH ₃ CH ₂ CF ₃ CF ₂ CH ₃ H SO ₂ 4.273 (CH ₃) ₂ CH CF ₃ CF ₂ CH ₃ H SO ₂ 4.274 CH ₃ (CH ₂) ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.275 Ph CF ₃ CF ₂ CH ₃ H SO ₂ 4.276 CH ₂ Br CF ₃ CF ₂ CH ₃ H SO ₂ 4.277 CH ₂ OCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.277 CH ₂ OCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂	4.265	SCH₃	CF₃	CH₃	Н		
4.267 SO ₂ CH ₃ CF ₃ CH ₃ H SO ₂ 4.268 SPh CF ₃ CH ₃ H SO ₂ 4.269 SOPh CF ₃ CH ₃ H SO ₂ 4.270 SO ₂ Ph CF ₃ CH ₃ H SO ₂ 4.271 CH ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.272 CH ₃ CH ₂ CF ₃ CF ₂ CH ₃ H SO ₂ 4.273 (CH ₃) ₂ CH CF ₃ CF ₂ CH ₃ H SO ₂ 4.274 CH ₃ (CH ₂) ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.275 Ph CF ₃ CF ₂ CH ₃ H SO ₂ 4.276 CH ₂ Br CF ₃ CF ₂ CH ₃ H SO ₂ 4.277 CH ₂ OCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.277 CH ₂ OCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.277 CH ₂ OCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂	4.266	SOCH₃	CF₃	СН₃	н		-
4.268 SPh CF ₃ CH ₃ H SO ₂ 4.269 SOPh CF ₃ CH ₃ H SO ₂ 4.270 SO ₂ Ph CF ₃ CH ₃ H SO ₂ 4.271 CH ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.272 CH ₃ CH ₂ CF ₃ CF ₂ CH ₃ H SO ₂ 4.273 (CH ₃) ₂ CH CF ₃ CF ₂ CH ₃ H SO ₂ 4.274 CH ₃ (CH ₂) ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.275 Ph CF ₃ CF ₂ CH ₃ H SO ₂ 4.276 CH ₂ Br CF ₃ CF ₂ CH ₃ H SO ₂ 4.277 CH ₂ OCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.277 CH ₂ OCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂	4.267	SO₂CH₃	CF ₃	СН₃	н		
4.269 SOPh CF ₃ CH ₃ H SO ₂ 4.270 SO ₂ Ph CF ₃ CH ₃ H SO ₂ 4.271 CH ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.272 CH ₃ CH ₂ CF ₃ CF ₂ CH ₃ H SO ₂ 4.273 (CH ₃) ₂ CH CF ₃ CF ₂ CH ₃ H SO ₂ 4.274 CH ₃ (CH ₂) ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.275 Ph CF ₃ CF ₂ CH ₃ H SO ₂ 4.276 CH ₂ Br CF ₃ CF ₂ CH ₃ H SO ₂ 4.277 CH ₂ OCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.277 CH ₂ OCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂	4.268	SPh	CF ₃	CH₃	Н		
4.270 SO ₂ Ph CF ₃ CH ₃ H SO ₂ 4.271 CH ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.272 CH ₃ CH ₂ CF ₃ CF ₂ CH ₃ H SO ₂ 4.273 (CH ₃) ₂ CH CF ₃ CF ₂ CH ₃ H SO ₂ 4.274 CH ₃ (CH ₂) ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.275 Ph CF ₃ CF ₂ CH ₃ H SO ₂ 4.276 CH ₂ Br CF ₃ CF ₂ CH ₃ H SO ₂ 4.277 CH ₂ OCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.277 CH ₂ OCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂	4.269	SOPh	CF ₃	СН₃	Н		
4.271 CH ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.272 CH ₃ CH ₂ CF ₃ CF ₂ CH ₃ H SO ₂ 4.273 (CH ₃) ₂ CH CF ₃ CF ₂ CH ₃ H SO ₂ 4.274 CH ₃ (CH ₂) ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.275 Ph CF ₃ CF ₂ CH ₃ H SO ₂ 4.276 CH ₂ Br CF ₃ CF ₂ CH ₃ H SO ₂ 4.277 CH ₂ OCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂	4.270	SO₂Ph	CF ₃	СН₃	Н		
4.273 (CH ₃) ₂ CH CF ₃ CF ₂ CH ₃ H SO ₂ 4.274 CH ₃ (CH ₂) ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.275 Ph CF ₃ CF ₂ CH ₃ H SO ₂ 4.276 CH ₂ Br CF ₃ CF ₂ CH ₃ H SO ₂ 4.277 CH ₂ OCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂	4.271	CH₃	CF ₃ CF ₂	СН₃	Н		
4.274 CH ₃ (CH ₂) ₃ CF ₃ CF ₂ CH ₃ H SO ₂ 4.275 Ph CF ₃ CF ₂ CH ₃ H SO ₂ 4.276 CH ₂ Br CF ₃ CF ₂ CH ₃ H SO ₂ 4.277 CH ₂ OCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂	4.272	CH ₃ CH ₂	CF ₃ CF ₂	CH₃	Н	SO ₂	
4.275 Ph CF ₃ CF ₂ CH ₃ H SO ₂ 4.276 CH ₂ Br CF ₃ CF ₂ CH ₃ H SO ₂ 4.277 CH ₂ OCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂	4.273	(CH₃)₂CH	CF ₃ CF ₂	CH₃	Н	SO ₂	
4.276 CH ₂ Br CF ₃ CF ₂ CH ₃ H SO ₂ 4.277 CH ₂ OCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂	4.274	$CH_3(CH_2)_3$	CF ₃ CF ₂	CH₃	Н	SO ₂	
4.277 CH ₂ OCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂	4.275	Ph	CF ₃ CF ₂	CH₃	Н	SO ₂	•
4.070	4.276	CH₂Br	CF ₃ CF ₂	СН₃	н	SO ₂	
4.278 CH ₂ SMe CF ₃ CF ₂ CH ₃ H SO ₂	4.277	CH₂OCH₃	CF ₃ CF ₂	СН₃	Н	SO ₂	
	4.278	CH₂SMe	CF ₃ CF ₂	СН₃	н	SO ₂	
4.279 CH ₂ SO ₂ Me CF ₃ CF ₂ CH ₃ H SO ₂	4.279	CH₂SO₂Me	CF ₃ CF ₂	CH ₃	Н	SO ₂	
4.280 SCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂	4.280	SCH₃	CF ₃ CF ₂	CH ₃	Н	SO ₂	
4.281 SOCH ₃ CF ₃ CF ₂ CH ₃ H SO ₂	4.281	SOCH₃	CF ₃ CF ₂	CH ₃	Н	SO ₂	
4.282 SO₂CH₃ CF₃CF₂ CH₃ H SO₂	4.282	SO₂CH₃	CF ₃ CF ₂	CH ₃	Н	SO ₂	
4.283 SPh CF ₃ CF ₂ CH ₃ H SO ₂	4.283	SPh	CF ₃ CF ₂	CH ₃	Н	SO ₂	
4.284 SOPh CF ₃ CF ₂ CH ₃ H SO ₂	4.284	SOPh	CF ₃ CF ₂	CH ₃	Н	SO ₂	
4.285 SO ₂ Ph CF ₃ CF ₂ CH ₃ H SO ₂	4.285	SO₂Ph	CF ₃ CF ₂	CH₃	Η.	SO ₂	
4.286 CH ₃ CHF ₂ CH ₃ H SO ₂	4.286	CH₃	CHF ₂	CH ₃	Н	SO ₂	
4.287 CH ₃ CH ₂ CHF ₂ CH ₃ H SO ₂	4.287		CHF ₂	CH₃	Н	SO ₂	
4.288 (CH₃)₂CH CHF₂ CH₃ H SO₂	4.288	(CH ₃)₂CH	CHF ₂	CH₃	Н	SO ₂	
4.289 $CH_3(CH_2)_3$ CHF_2 CH_3 H SO_2		CH ₃ (CH ₂) ₃	CHF ₂	CH₃	Н	SO ₂	
4.290 Ph CHF₂ CH₃ H SO₂	4.290	Ph	CHF ₂	CH ₃	Н	SO ₂	
4.291 CH ₂ Br CHF ₂ CH ₃ H SO ₂	4.291	CH₂Br	CHF ₂	CH ₃	Н	SO ₂	
4.292 CH₂OCH₃ CHF₂ CH₃ H SO₂	4.292	CH ₂ OCH ₃	CHF ₂	CH ₃	Н	SO ₂	
4.293 CH ₂ SMe CHF ₂ CH ₃ H SO ₂	4.293	CH₂SMe	CHF ₂	CH ₃	Н	SO ₂	
4.294 CH₂SO₂Me CHF₂ CH₃ H SO₂		CH ₂ SO₂Me	CHF ₂	CH₃	Н	SO ₂	
4.295 SCH ₃ CHF ₂ CH ₃ H SO ₂	4.295	SCH₃	CHF ₂	CH₃	Н	SO ₂	

						-
Compd.	R 75	R 76	R 77	R 78	Z	m.p.(°C)
no.						
4.296	SOCH₃	CHF ₂	CH₃	Н	SO ₂	
4.297	SO ₂ CH ₃	CHF ₂	CH ₃	Н	SO ₂	
4.298	SPh	CHF ₂	CH ₃	Н	SO ₂	<u> </u>
4.299	SOPh	CHF ₂	CH₃	Н	SO ₂	
4.300	SO₂Ph	CHF ₂	CH ₃	Н	SO ₂	
4.301	CH₃	CF ₃	H	CH₃	SO ₂	
4.302	CH ₃ CH ₂	CF ₃	H	CH ₃	SO ₂	
4.303	(CH ₃) ₂ CH	CF ₃	H	CH₃	SO_2	
4.304	$CH_3(CH_2)_3$	CF ₃	Н	CH ₃	SO ₂	
4.305	Ph	CF ₃	Н	CH₃	SO ₂	
4.306	CH₂Br	CF ₃	Н	CH ₃	SO ₂	
4.307	CH₂OCH₃	CF ₃	Н	CH₃	SO ₂	
4.308	CH₂SMe	CF ₃	Н	CH ₃	SO ₂	
4.309	CH₂SO₂Me	CF ₃	Н	CH ₃	SO ₂	•
4.310	SCH₃	CF ₃	Н	CH ₃	SO ₂	
4.311	SOCH₃	CF ₃	Н	CH ₃	SO ₂	
4.312	SO ₂ CH ₃	CF ₃	Н	CH ₃	SO ₂	
4.313	SPh	CF ₃	Н	CH ₃	SO ₂	
4.314	SOPh	CF ₃	Н	CH ₃	SO ₂	
4.315	SO₂Ph	CF ₃	Н	CH₃	SO ₂	

Table 5: Compounds of formula XVI:

Compd.	R 79	R 80	R ₈₁	R ₈₂
no.				
A1	 н	н	н	CF ₂

Compo	i. R ₇₉	R 80	R ₈₁	R ₈₂
no.		00	• -01	• •82
A2	CH₃	н	Н	CF₃
АЗ	CH₃CH₂	н	Н	CF₃
A4	(CH₃)₂CH	н	Н	CF ₃
A 5	(CH₃)₃C	н	H	CF₃
A6	cyclopropyl	н	H ⁻	CF ₃
A 7	CH ₃ (CH ₂) ₂	Н	Н	CF ₃
A8	CH₃OCH₂	н	Н	CF₃
A9	CH ₃ O(CH ₂) ₂	H	Н	CF₃
A10	Ph	н	Н	CF₃
A11	PhO	н	Н	CF₃
A12	PhS	н	н	CF₃
A13	PhSO	н	Н	CF₃
A14	PhSO₂	Н	Н	CF ₃
A15	CH₃S	Н	Н	CF ₃
A16	CH₃SO	н	Н	CF ₃
A17	CF ₃	н	Н	CF ₃
A18	F₂CH	н	Н	CF ₃
A19	HCC	Н	Н	CF ₃
A20	CH₃CC	Н	Н	CF₃
A21	CH ₂ =CH	, H	Н	CF₃
A22	CH ₂ =CHCH ₂	Н	Н	CF ₃
A23	CH₃SO₂N(CH₃)	н	Н	CF ₃
A24	(CH ₃) ₂ N	Н	Н	CF ₃
A25	(CH ₃)₂NSO₂	Н	• Н	CF ₃
A26	CICH ₂	Н	Н	CF ₃
A27	CH₃SCH₂	Н	Н	CF ₃
A28	CH₃SOCH₂	Н	Н	CF ₃
A29	CH ₃ SO ₂ CH ₂	н	Н	CF₃
A30	[1,2,4]-triazol-1-yl-methyl	H	Н	CF₃
A31	CH₃	CF₃	Н	CH ₃
A32	CH₃	CH₃	H	CF ₃
A33	Н	Н	Н	CF₃CF₂

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Compd.	R 79	R 80	R ₈₁	R ₈₂
no.	•			
A34	CH₃	Н	Н	CF₃CF₂
A35	CH₃CH₂	Н	Н	CF₃CF₂
A36	cyclopropyl	н	Н	CF₃CF₂
A37	(CH₃)₃C	Н	Н	CF₃CF₂
A38	(CH ₃) ₂ CH	H	Н	CF₃CF₂
A39	CH ₃ (CH ₂) ₂	Н	Н	CF ₃ CF ₂
A40	CH₃OCH₂	Н	Н	CF ₃ CF ₂
A41	CH ₃ O(CH ₂) ₂	Н	Н	CF ₃ CF ₂
A42	Ph	Н	Н	CF ₃ CF ₂
A43	PhO	Н	Н	CF ₃ CF ₂
A44	PhS	Н	Н	CF ₃ CF ₂
A45	PhSO	Н	Н	CF ₃ CF ₂
A46	PhSO ₂	Н	н	CF ₃ CF ₂
A47	CH₃S	Н	H	CF ₃ CF ₂
A48	CH₃SO	Н	Н	CF₃CF₂
A49	CF₃	Н	Н	CF ₃ CF ₂
A50	F₂CH	Н	Н	CF₃CF₂
A51	HCC	Н	Н	CF ₃ CF ₂
A52	CH₃CC	Н	Н	CF ₃ CF ₂
A53	CH ₂ =CH	Н	Н	CF ₃ CF ₂
A54	CH ₂ =CHCH ₂	Н	Н	CF₃CF₂
A55	CH ₃ SO ₂ N(CH ₃)	Н	Н	CF ₃ CF ₂
A56	(CH ₃) ₂ N	Н	Н	CF₃CF₂
A57	(CH ₃) ₂ NSO ₂	Н	·H	CF ₃ CF ₂
A58	CICH₂	H	Н	CF₃CF₂
A59	CH₃SCH₂	Н	Н	CF₃CF₂
A60	CH₃SOCH₂	Н	Н	CF₃CF₂
A61	CH₃SO₂CH₂	Н	Н	CF₃CF₂
A62	[1,2,4]-triazol-1-yl-methyl	Н	Н	CF₃CF₂
A63	н	Н	Н	CF ₃ CF ₂ CF ₂
A64	CH ₃	Н	Н	CF ₃ CF ₂ CF ₂
A65	···· CH₃CH₂	Н	Н	CF ₃ CF ₂ CF ₂

Compd	. R ₇₉	R 80	R ₈₁	R ₈₂
no.				
A66	cyclopropyl	Н	н	CF ₃ CF ₂ CF ₂
A67	(CH₃)₃C	Н	Н	CF ₃ CF ₂ CF ₂
A68	(CH ₃) ₂ CH	Н	Н	CF3CF2CF2
A69	CH ₃ (CH ₂) ₂	Н	Н	CF ₃ CF ₂ CF ₂
A70	CH₃OCH₂	Н	Н	CF ₃ CF ₂ CF ₂
A71	CH ₃ O(CH ₂) ₂	Н	Н	CF ₃ CF ₂ CF ₂
A72	Ph	н	Н.	CF ₃ CF ₂ CF ₂
A73	PhO	Н	Н	CF ₃ CF ₂ CF ₂
A74	PhS	Н	/ H	CF ₃ CF ₂ CF ₂
A75	PhSO	Н	Н	CF ₃ CF ₂ CF ₂
A76	PhSO ₂	н	Н	CF ₃ CF ₂ CF ₂
A77	CH₃S	Н	Н	CF ₃ CF ₂ CF ₂
A78	CH₃SO	Н	Н	CF ₃ CF ₂ CF ₂
A79	CF ₃	Н	Н	CF ₃ CF ₂ CF ₂
A80	F₂CH	Н	Н	CF ₃ CF ₂ CF ₂
A81	HCC	н	Н	CF ₃ CF ₂ CF ₂
A82	CH₃CC	Н	Н	CF ₃ CF ₂ CF ₂
A83	CH₂=CH	н	Н	CF ₃ CF ₂ CF ₂
A84	CH₂=CHCH₂	Н	H	CF ₃ CF ₂ CF ₂
A85	CH ₃ SO ₂ N(CH ₃)	H	Н	CF ₃ CF ₂ CF ₂
A86	(CH ₃) ₂ N	Н	Н	CF ₃ CF ₂ CF ₂
A87	(CH ₃) ₂ NSO ₂	Н	Н	CF ₃ CF ₂ CF ₂
A88	CICH ₂	Н	H	CF ₃ CF ₂ CF ₂
A89	CH₃SCH₂	Н	Н	CF ₃ CF ₂ CF ₂
A90	CH₃SOCH₂	Н	Н	CF ₃ CF ₂ CF ₂
A91	CH ₃ SO ₂ CH ₂	Н	Н	CF ₃ CF ₂ CF ₂
A92	[1,2,4]-triazol-1-yl-methyl	Н	Н	CF ₃ CF ₂ CF ₂
A93	Н	Н	Н	CF ₂ CI
A94	CH ₃	Н	Н	CF ₂ CI
A95	CH₃CH₂	Н	Н	CF₂CI
A96	cyclopropyl	Н	Н	CF ₂ CI
A97	(CH ₃) ₃ C	H	Н	CF ₂ CI

. R 79	R 80	R ₈₁	R ₈₂
(CH ₃) ₂ CH	н	Н	CF ₂ Cl
$CH_3(CH_2)_2$	н	Н	CF ₂ Cl
CH₃OCH₂	Н	Н	CF ₂ CI
CH ₃ O(CH ₂) ₂	н	Н	CF ₂ Cl
Ph	Н	Н	CF ₂ Cl
PhO	н	Н	CF ₂ Ci
PhS	Н	Н	CF ₂ CI
PhSO	Н	Н	CF ₂ CI
PhSO ₂	н	Н	CF ₂ CI
CH₃S	Н	Н	CF ₂ CI
CH₃SO	н	Н	CF ₂ Cl
· CF ₃	Н	Н	CF ₂ CI
F ₂ CH	Н	Н	CF ₂ CI
HCC.	н	Н	CF ₂ CI
CH₃CC	Н	Н	CF ₂ Cl
CH ₂ =CH	Н	Н	CF ₂ Cl
CH ₂ =CHCH ₂	Н	Н	CF ₂ CI
CH₃SO₂N(CH₃)	Н	Н	CF ₂ CI
(CH₃)₂N	Н	Н	CF ₂ CI
(CH ₃) ₂ NSO ₂	Н	Н	CF ₂ CI
CICH ₂	н	Н	CF ₂ CI
CH₃SCH₂	Н	H	CF ₂ Cl
CH₃SOCH₂	Н	Н	CF ₂ Cl
CH ₃ SO ₂ CH ₂	Н	H .	CF ₂ CI
[1,2,4]-triazol-1-yl-methyl	Н	Н	CF ₂ CI
Н	Н	Н	CHF ₂
CH₃	H	Н	CHF ₂
CH₃CH₂	Н	Н	CHF ₂
cyclopropyl	Н	Н	CHF ₂
(CH₃)₃C	H	Н	CHF ₂
(CH₃)₂CH	Н	Н	CHF ₂
CH ₃ (CH ₂) ₂	Н	Н	CHF ₂
	(CH ₃) ₂ CH CH ₃ (CH ₂) ₂ CH ₃ OCH ₂ CH ₃ O(CH ₂) ₂ Ph PhO PhS PhSO PhSO ₂ CH ₃ S CH ₃ SO CF ₃ F ₂ CH HCC CH ₂ =CH CC CH ₂ =CHCH ₂ CH ₃ SO ₂ N(CH ₃) (CH ₃) ₂ N (CH ₃) ₂ N (CH ₃) ₂ N (CH ₃) ₂ NSO ₂ CICH ₂ CH ₃ SOCH ₂ CH ₃ SOCH ₂ CH ₃ SOCH ₂ CH ₃ SOCH ₂ CH ₃ CC CH ₃ CC CH ₃ SOCH ₂ CH ₃ CC CH ₃ CC CH ₃ SOCH ₂ (CH ₃ SOCH ₂ CH ₃ COCH ₂ (CH ₃ SOCH ₂ CH ₃ COCH ₂ (CH ₃ COCH ₂ CH ₃ COCH ₂ CH ₃ COCH ₂ CH ₃ COCH ₂ CH ₃ COCH ₂	(CH ₃) ₂ CH H CH ₃ (CH ₂) ₂ H CH ₃ OCH ₂ H CH ₃ O(CH ₂) ₂ H Ph H PhO H PhS H PhSO H PhSO ₂ H CH ₃ SO H CF ₃ H CH ₃ SO H CF ₃ H F ₂ CH H HCC H CH ₂ =CH H CH ₂ =CHCH ₂ H CH ₃ SO ₂ N(CH ₃) H (CH ₃) ₂ NSO ₂ H CH ₃ SOCH ₂ H CH ₃ CH ₃ H CH ₃ CH ₂ H CH ₃ CCH ₂ H CH ₃ COCH ₂ H	(CH ₃) ₂ CH

Compd.	R ₇₉	R 80	R ₈₁	R ₈₂
no.			_	
A130	CH₃OCH₂	Н	Н	CHF ₂
A131	CH₃O(CH₂)₂	Н	Н	CHF ₂
A132	Ph	Н	н	CHF ₂
A133	PhO	Н	Н	CHF ₂
A134	PhS	Н	H	CHF ₂
A135	PhSO	Н	Н	CHF ₂
A136	PhSO ₂	Н	Н	CHF ₂
A137	CH₃S	Н	н	CHF ₂
A138	CH₃SO	Н	Н	CHF ₂
A139	CF ₃	Н	Н	CHF ₂
A140	F ₂ CH	Н	Н	CHF ₂
A141	HCC	. н	Н	CHF ₂
A142	CH₃CC	н	Н	CHF ₂
A143	CH ₂ =CH	н	Н	CHF ₂
A144	CH ₂ =CHCH ₂	н	Н	CHF ₂
A145	CH ₃ SO ₂ N(CH ₃)	Н	Н	CHF ₂
A146	(CH₃)₂N	Н	Н	CHF ₂
A147	(CH ₃)₂NSO₂	Н	Н	CHF ₂
A148	CICH ₂	Н	Н	CHF ₂
A149	CH₃SCH₂	. Н	Н	CHF ₂
A150	CH₃SOCH₂	Н	Н	CHF ₂
A151	CH ₃ SO ₂ CH ₂	Н	Н	CHF ₂
A152	[1,2,4]-triazol-1-yl-methyl	Н	Н	CHF ₂
A153	Н	. Н	H	CCl ₃
A154	CH₃	Н	н.	CCI ₃
A155	CH₃CH₂	Н	. Н	CCl ₃
A156	cyclopropyl	Н	Н	CCl ₃
A157	(CH₃)₃C	Н	Н	CCI ₃
A158	(CH₃)₂CH	H	Н	CCl ₃
A159	CH ₃ (CH ₂) ₂	Н	Н	CCl ₃
A160	CH₃OCH₂	Н	Н	CCl ₃
A161	°°CH₃O(CH₂)₂	Н	Н	CCl₃

Compd.	R 79	R 80	R_{81}	R ₈₂
no.				
A162	Ph	Н	Н	CCl ₃
A163	PhO	Н	Н	CCl ₃
A164	PhS	Н	Н	ĈCl₃
A165	PhSO	Н	Н	CCl ₃
A166	PhSO ₂	н	Н	CCl ₃
A167	CH₃S	Н	н	CCl ₃
A168	CH₃SO	Н	Н	CCl ₃
A169	CF ₃	Н	н	CCl ₃
A170	F₂CH	Н	н	CCl ₃
A171	HCC	Н	Н	CCl ₃
A172	CH₃CC	Н	Н	CCl ₃
A173	CH ₂ =CH	Н	• н	CCl ₃
A174	CH ₂ =CHCH ₂	Н	Н	CCI ₃
A175	CH ₃ SO ₂ N(CH ₃)	Н	Н	CCI ₃
A176	(CH₃)₂N	Н	Н	CCl ₃
A177	(CH ₃)₂NSO ₂	Н	Н	CCl ₃
A178	CICH ₂	Н	Н	CCI ₃
A179	. CH₃SCH₂	Н	Н	CCI ₃
A180	CH₃SOCH₂	H	Н	CCl₃
A181	CH₃SO₂CH₂	Н	H	CCl ₃
A182	[1,2,4]-triazol-1-yl-methyl	Н	Н	CCI ₃
A183	Н	Н	CH₃	CF ₃
A184	CH₃	Н	CH₃	CF₃
A185	CH₃CH₂	Н	CH₃	CF ₃
A186	cyclopropyl	· H	CH₃	CF ₃
A187	(CH₃)₃C	Н	CH ₃	CF ₃
A188	(CH ₃)₂CH	Н	CH ₃	CF₃
A189	CH₃(CH₂)₂	Н	CH ₃	CF ₃
A190	CH₃OCH₂	Н	CH₃	CF₃
A191	CH ₃ O(CH ₂) ₂	Н	CH ₃	CF ₃
A192	Ph	H	CH₃	CF₃
A193	PhO	Н	CH₃	CF ₃

				-
Compd.	R 79	R 80	R ₈₁	R ₈₂
no.				
A194	PhS	Н	CH ₃	CF ₃
A195	PhSO	н	CH₃	CF ₃
A196	PhSO ₂	н	CH₃	CF₃
A197	CH₃S	Н	CH₃	CF ₃
A198	CH₃SO	н	CH₃	CF ₃
A199	CF₃	н	CH₃	CF₃
A200	F ₂ CH	н	СН3	CF₃
A201	HCC	H	СН₃	CF₃
A202	CH₃CC	Н	CH₃	CF₃
A203	CH ₂ =CH	н	CH₃	CF ₃
A204	CH ₂ =CHCH ₂	Н	CH ₃	CF ₃
A205	CH ₃ SO ₂ N(CH ₃)	н	CH₃	CF ₃
A206	(CH₃)₂N	Н	CH₃	CF ₃
A207	(CH ₃) ₂ NSO ₂	н	CH₃	CF ₃
A208	CICH₂	н	СН₃	CF ₃
A209	CH₃SCH₂	H	CH₃	CF ₃
A210	CH₃SOCH₂	Н	CH₃	CF ₃
A211	CH₃SO₂CH₂	Н	CH ₃	CF ₃
A212	Η .	Н	CH₃	CF ₃ CF ₂
A213	CH₃	, Н	CH₃	CF ₃ CF ₂
A214	CH₃CH₂	Н	CH ₃	CF ₃ CF ₂
A215	cyclopropyl	н	CH ₃	CF ₃ CF ₂
A216	(CH₃)₃C	н	CH ₃	CF ₃ CF ₂
A217	(CH₃)₂CH	Н	CH₃	CF ₃ CF ₂
A218	CH₃(CH₂)₂	Н	CH₃	CF ₃ CF ₂
A219	CH₃OCH₂	Н	CH₃	CF ₃ CF ₂
A220	CH ₃ O(CH ₂) ₂	. Н	CH₃	CF ₃ CF ₂
A221	Ph	Н	CH₃	CF ₃ CF ₂
A222	PhO	Н	CH₃	CF₃CF₂
A223	PhS	Н	CH₃	CF ₃ CF ₂
A224	PhSO	Н	CH₃	CF ₃ CF ₂
A225	PhSO ₂	н	CH₃	CF ₃ CF ₂

Compd.	R 79	R 80	R ₈₁	R ₈₂
no.				
A226	CH₃S	H ,	CH ₃	CF ₃ CF ₂
A227	CH₃SO	н	CH₃	CF ₃ CF ₂
A228	CF ₃	н	СН₃	CF₃CF₂
A229	F₂CH	Н	CH₃	CF ₃ CF ₂
A230.	HCC	н	CH₃	CF ₃ CF ₂
A231	CH₃CC	н	CH₃	CF ₃ CF ₂
A232	CH₂=CH	Н	CH₃	CF₃CF₂
A233	CH ₂ =CHCH ₂	н	CH₃	CF ₃ CF ₂
A234	CH ₃ SO ₂ N(CH ₃)	н	CH₃	CF₃CF₂
A235	$(CH_3)_2N$	н	CH₃	CF₃CF₂
A236	(CH ₃) ₂ NSO ₂	Н	CH₃	CF ₃ CF ₂
A237	CICH ₂	н	CH₃	CF ₃ CF ₂
A238	CH₃SCH₂	н	CH₃	CF ₃ CF ₂
A239	CH₃SOCH₂	н	CH₃	CF ₃ CF ₂
A240	CH ₃ SO ₂ CH ₂	Н	CH ₃	CF ₃ CF ₂
A241	Н	Н	CH ₃	CF ₃ CF ₂ CF ₂
A242	CH₃	н	СН₃	CF ₃ CF ₂ CF ₂
A243	CH₃CH₂	Н	CH ₃	CF ₃ CF ₂ CF ₂
A244	cyclopropyl	Н	CH ₃	CF ₃ CF ₂ CF ₂
A245	$(CH_3)_3C$	Н	CH ₃	CF ₃ CF ₂ CF ₂
A246	(CH₃)₂CH	Н	CH ₃	CF ₃ CF ₂ CF ₂
A247	CH ₃ (CH ₂) ₂	н	CH ₃	CF ₃ CF ₂ CF ₂
A248	CH₃OCH₂	Н	CH ₃	CF ₃ CF ₂ CF ₂
A249	CH ₃ O(CH ₂) ₂	Н	CH ₃	CF ₃ CF ₂ CF ₂
A250	Ph	H	CH ₃	CF ₃ CF ₂ CF ₂
A251	PhO	Н	CH ₃	CF ₃ CF ₂ CF ₂
A252	PhS	Н	CH ₃	CF ₃ CF ₂ CF ₂
A253	PhSO	Н	CH₃	CF ₃ CF ₂ CF ₂
A254	PhSO ₂	Н	CH ₃	CF ₃ CF ₂ CF ₂
A255	CH₃S	Н	CH ₃	CF ₃ CF ₂ CF ₂
A256	CH₃SO	Н	CH ₃	CF ₃ CF ₂ CF ₂
A257	CF ₃	Н	CH ₃	CF ₃ CF ₂ CF ₂

		•		
Compd.	R 79	R 80	R ₈₁	R ₈₂
no.				
A258	F₂CH	Н	CH₃	CF ₃ CF ₂ CF ₂
A259	HCC	н	CH₃	CF ₃ CF ₂ CF ₂
A260	CH₃CC	н	CH₃	CF ₃ CF ₂ CF ₂
A261	CH₂=CH	н	CH₃	CF ₃ CF ₂ CF ₂
A262	CH ₂ =CHCH ₂	н	СН₃	CF ₃ CF ₂ CF ₂
A263	CH₃SO₂N(CH₃)	н	СН₃	CF ₃ CF ₂ CF ₂
A264	(CH₃)₂N	н	CH ₃	CF ₃ CF ₂ CF ₂
A265	(CH ₃) ₂ NSO ₂	н	CH₃	CF ₃ CF ₂ CF ₂
A266	CICH ₂	н	CH₃	CF ₃ CF ₂ CF ₂
A267	CH₃SCH₂	Н	СН₃	CF ₃ CF ₂ CF ₂
A268	CH₃SOCH₂	н	СН₃	CF ₃ CF ₂ CF ₂
A269	CH ₃ SO ₂ CH ₂	Ĥ	СН₃	CF ₃ CF ₂ CF ₂
A270	Н	Н	CH₃	CF ₂ Cl
A271	CH₃	н	СН₃	CF₂CI
A272	CH₃CH₂	Н	CH₃	CF ₂ CI
A273	cyclopropyl	Н	CH₃	CF ₂ CI
A274	(CH ₃) ₃ C	Н	CH₃	CF₂CI
A275	(CH₃)₂CH	Н	CH ₃	CF₂CI
A276	CH ₃ (CH ₂) ₂	н	CH ₃	CF₂CI
A277	CH ₃ OCH ₂ ·	Н	CH ₃	CF₂CI
A278	CH ₃ O(CH ₂) ₂	н	СН₃	CF ₂ CI
A279	Ph	н	CH₃	CF₂CI
A280	PhO	Н	CH₃	CF₂CI
A281	PhS	Н	CH₃	CF ₂ Cl
A282	PhSO	Н	CH₃	CF₂CI
A283	PhSO₂	Н	CH ₃	CF₂CI
A284	CH₃S	н	СН₃	CF ₂ Cl
A285	CH₃SO	н	CH₃	CF ₂ CI
A286	CF ₃	Н	СН₃	CF ₂ CI
A287	F₂CH	н	CH₃	CF ₂ CI
A288	HCC	н	CH₃	CF₂Cl
A289	· CH₃CC	н	CH₃	CF₂CI

Compd.	R 79	R 80	R ₈₁	R ₈₂
no.	·			
A290	CH ₂ =CH	Н	CH₃	CF ₂ CI
A291	CH ₂ =CHCH ₂	Н	CH ₃	CF ₂ CI
A292	CH ₃ SO ₂ N(CH ₃)	Н	CH₃	ĈF₂CI
A293	$(CH_3)_2N$	н	CH₃	CF ₂ CI
A294	(CH ₃) ₂ NSO ₂	н	CH₃	CF ₂ CI
A295	CICH ₂	Н	CH₃	CF ₂ CI
A296	CH₃SCH₂	н	CH₃	CF ₂ CI
A297	CH₃SOCH₂	н	CH₃	CF ₂ CI
A298	CH₃SO₂CH₂	н	CH₃	CF ₂ CI
A299	н	н	CH₃	CHF ₂
A300	CH₃	Н	CH₃	CHF ₂
A301	CH₃CH₂	Н	CH₃	CHF ₂
A302	cyclopropyl	н	CH₃	CHF ₂
A303	(CH ₃) ₃ C	Н	CH₃	CHF ₂
A304	(CH₃)₂CH	Н	CH₃	CHF₂
A305	CH ₃ (CH ₂) ₂	Н	CH₃	CHF ₂
A306	CH₃OCH₂	Н	CH ₃	CHF ₂
A307	CH₃O(CH₂)₂	Н	CH ₃	CHF ₂
A308	Ph	Н	CH₃	CHF ₂
A309	PhO	Н	CH ₃	CHF ₂
A310	PhS	Н	CH ₃	CHF ₂
A311	PhSO	н	CH₃	CHF ₂
A312	PhSO ₂	Н	CH ₃	CHF ₂
A313	CH₃S	н	CH₃	CHF ₂
A314	CH₃SO	н	CH ₃	CHF ₂
A315	CF ₃	н	CH ₃	CHF ₂
A316	F ₂ CH	н	CH ₃	CHF ₂
A317	HCC	н	CH₃	CHF ₂
A318	CH₃CC	н	CH ₃	CHF ₂
A319	CH ₂ =CH	н	CH₃	CHF ₂
A320	CH ₂ =CHCH ₂	н	CH₃	CHF ₂
A321	CH ₃ SO ₂ N(CH ₃)	н	CH ₃	CHF ₂

Compd.	R 79	R 80	В	
no.	11 79	₽ 80	R ₈₁	R ₈₂
A322	(CH₃)₂N	Н	CH₃	CHF₂
A323	(CH ₃) ₂ NSO ₂	Н	CH₃ CH₃	CHF ₂
A324		 Н	CH₃ CH₃	CHF ₂
A325	CH₃SCH₂	н	CH₃ CH₃	CHF ₂
A326		н	CH₃	
A327	CH ₃ SO ₂ CH ₂	н	CH₃ CH₃	CHF ₂
A328	H	н	CH₃ CH₃	CHF ₂
A329	CH₃	Н		CCl ₃
A330	CH₃CH₂	Н	CH₃ CH₃	CCl₃
A331	(CH ₃) ₃ C	H	СП₃ СН₃	CCl ³
A332	(CH₃)₂CH	н	CH₃	CCI ₃
A333	cyclopropyl	н	СП₃ СН₃	CCl₃ CCl₃
A334	CH ₃ (CH ₂) ₂	н	CH₃ CH₃	CCI ₃
A335		., Н	CH₃ CH₃	CCI ₃
A336	CH₃O(CH₂)₂	.н	CH₃ CH₃	CCl ₃
A337	Ph	н	CH₃	CCl ₃
A338	PhO	н	CH₃	CCl ₃
A339	PhS	 Н	CH₃	CCl ₃
A340	PhSO	н	CH₃	CCl ₃
A341	PhSO ₂	н	CH₃	CCl ₃
A342	CH₃S	Н	CH₃	CCl ₃
A343	CH₃SO	H	CH₃	CCl ₃
A344	CF₃	Н	CH₃	CCl ₃
A345	F ₂ CH	Н	CH₃	CCl₃
A346	HCC	Н	CH₃	CCl₃
A347	CH₃CC	Н	. CH₃	CCI ₃
A348	CH ₂ =CH	Н	CH₃	CCl₃
A349	CH ₂ =CHCH ₂	Н	CH₃	CCl₃
A350	CH ₃ SO ₂ N(CH ₃)	Н	CH₃	CCI ₃
A351	(CH₃)₂N	H	CH₃	CCl ₃
A352	(CH ₃) ₂ NSO ₂	Н	CH₃	CCl ₃
A353	······ CICH ₂	Н	CH₃	CCI ₃
	-		20	J3

Compd.	R 79	R 80	R ₈₁	R ₈₂
no.				
A354	CH₃SCH₂	Н	CH ₃	CCl ₃
A355	CH₃SOCH₂	Н	CH ₃	CCl ₃
A356	CH₃SO₂CH₂	н	CH ₃	ĈCl₃
A357	Н	Н	Ph	CF₃
A358	CH₃	Н	Ph	CF₃
A359	CH₃CH₂	H	Ph	CF₃
A360	cyclopropyl	н	Ph	CF₃
A361	(CH₃)₃C	· H	Ph	CF ₃
A362	(CH₃)₂CH	н	Ph	CF₃
A363	CH ₃ (CH ₂) ₂	Н	Ph	CF ₃
A364	CH₃OCH₂	Н	Ph	CF₃
A365	CH ₃ O(CH ₂) ₂	н	Ph	CF₃
A366	Ph	н	Ph	CF ₃
A367	PhO	н	Ph	CF₃
A368	PhS	Н	Ph	CF ₃
A369	PhSO	н	Ph	CF ₃
A370	PhSO₂	Н	Ph	CF ₃
A371	CH₃S	Н	Ph	CF₃
A372	CH₃SO	Н	Ph	CF ₃
A373	CF₃	Н	Ph	CF ₃
A374	F₂CH	Н	Ph	CF ₃
A375	HCC	н	Ph	CF ₃
A376	CH₃CC	н	Ph	CF ₃
A377	CH₂=CH	Н	Ph	CF ₃
A378	CH₂=CHCH₂	Н	Ph	CF ₃
A379	CH₃SO₂N(CH₃)	Н	Ph	CF ₃
A380	(CH ₃) ₂ N	н	Ph	CF ₃
A381	(CH₃)₂NSO₂	Н	Ph	CF ₃
A382	CICH ₂	н	Ph	CF ₃
A383	CH₃SCH₂	Н	Ph	CF ₃
A384	CH₃SOCH₂	Н	Ph	CF ₃
A385	CH ₃ SO ₂ CH ₂	Н	Ph	CF ₃

Compd.	R ₇₉	R 80	R ₈₁	R ₈₂
no.				
A386	н	Н	Ph	CF₃CF₂
A387	CH₃	Н	Ph	CF ₃ CF ₂
A388	CH₃CH₂	Н	Ph	ĈF₃CF₂
A389	cyclopropyl	Н	Ph	CF ₃ CF ₂
A390	(CH ₃) ₃ C	н	Ph	CF ₃ CF ₂
A391	(CH ₃) ₂ CH	н	Ph	CF ₃ CF ₂
A392	CH ₃ (CH ₂) ₂	н	Ph	CF ₃ CF ₂
A393	CH₃OCH₂	н	Ph	CF ₃ CF ₂
A394	CH ₃ O(CH ₂) ₂	н	Ph	CF ₃ CF ₂
A395	Ph	Н	Ph	CF ₃ CF ₂
A396	PhO	Н	Ph	CF ₃ CF ₂
A397	PhS	н	Ph	CF ₃ CF ₂
A398	PhSO	Н	Ph	CF ₃ CF ₂
A399	PhSO ₂	Н	Ph	CF ₃ CF ₂
A400	CH₃S	Н	Ph	CF ₃ CF ₂
A401	CH₃SO	Н	Ph	CF ₃ CF ₂
A402	CF ₃	Н	Ph	CF ₃ CF ₂
A403	F₂CH	н	· Ph	CF ₃ CF ₂
A404	HCC	н	Ph	CF ₃ CF ₂
A405	CH₃CC	н	Ph	CF ₃ CF ₂
A406	CH₂=CH	Н	Ph	CF ₃ CF ₂
A407	CH ₂ =CHCH ₂	Н	Ph	CF ₃ CF ₂
A408	CH ₃ SO ₂ N(CH ₃)	Н	Ph	CF ₃ CF ₂
A409	(CH ₃)₂N	Н .	Ph	CF ₃ CF ₂
A410	$(CH_3)_2NSO_2$	Н	Ph	CF ₃ CF ₂
A411	CICH ₂	Н	Ph	CF ₃ CF ₂
A412	CH₃SCH₂	н	Ph	CF ₃ CF ₂
A413	CH₃SOCH₂	н	Ph	CF ₃ CF ₂
A414	CH₃SO₂CH₂	н	Ph	CF ₃ CF ₂
A415	Н	н	Ph	CF ₃ CF ₂ CF ₂
A416	CH₃	н	Ph	CF ₃ CF ₂ CF ₂
A417	CH₃CH₂	Н	Ph	CF ₃ CF ₂ CF ₂

Compd.	R 79	R 80	R ₈₁	R ₈₂
no.				
A418	cyclopropyl	Н	Ph	CF ₃ CF ₂ CF ₂
A419	(CH₃)₃C	н	Ph	CF ₃ CF ₂ CF ₂
A420	(CH₃)₂CH	н	Ph	CF₃CF₂CF₂
A421	CH ₃ (CH ₂) ₂	н	Ph	CF ₃ CF ₂ CF ₂
A422	CH₃OCH₂	Н	Ph	CF ₃ CF ₂ CF ₂
A423	CH ₃ O(CH ₂) ₂	н	Ph	CF ₃ CF ₂ CF ₂
A424	Ph	н	Ph	CF ₃ CF ₂ CF ₂
A425	PhO	Н	Ph	CF ₃ CF ₂ CF ₂
A426	PhS	Н	Ph	CF ₃ CF ₂ CF ₂
A427	PhSO	Н	Ph	CF ₃ CF ₂ CF ₂
A428	PhSO₂	Н	Ph	CF ₃ CF ₂ CF ₂
A429	CH₃S	н	Ph	CF ₃ CF ₂ CF ₂
A430	CH₃SO	н	Ph	CF ₃ CF ₂ CF ₂
A431	CF₃	н	Ph	CF ₃ CF ₂ CF ₂
A432	F ₂ CH	н	Ph	CF ₃ CF ₂ CF ₂
A433	HCC	Н	Ph	CF ₃ CF ₂ CF ₂
A434	CH₃CC	н	Ph	CF ₃ CF ₂ CF ₂
A435	CH₂=CH	н	Ph	CF ₃ CF ₂ CF ₂
A436	CH₂=CHCH₂	Н	Ph	CF ₃ CF ₂ CF ₂
A437	CH₃SO₂N(CH₃)	Н	Ph	CF ₃ CF ₂ CF ₂
A438	(CH₃)₂N	Н	Ph	CF ₃ CF ₂ CF ₂
A439	(CH ₃) ₂ NSO ₂	Н	Ph	CF ₃ CF ₂ CF ₂
A440	CICH ₂	н	Ph	CF ₃ CF ₂ CF ₂
A441	CH₃SCH₂	Н	Ph	CF ₃ CF ₂ CF ₂
A442	CH₃SOCH₂	н	Ph	CF ₃ CF ₂ CF ₂
A443	CH₃SO₂CH₂	Н	Ph	CF₃CF₂CF₂
A444	Н	н ′	Ph	CF₂CI
A445	CH₃	Н	Ph	CF₂CI
A446	CH₃CH₂	н	Ph	CF₂CI
A447	cyclopropyl	Н	Ph	CF ₂ CI
A448	(CH₃)₃C	Н	Ph	CF ₂ CI
A449	(CH ₃) ₂ CH	Н	Ph	CF ₂ CI

Compd.	R 79	R 80	R ₈₁	R ₈₂
no.				
A450	CH ₃ (CH ₂) ₂	Н	Ph	CF₂CI
A451	CH₃OCH₂	Н	Ph	CF₂CI
A452	CH ₃ O(CH ₂) ₂	Н	Ph	ĈF₂CI
A453	Ph	н	Ph	CF ₂ CI
A454	PhO	н	Ph	CF₂CI
A455	PhS	Н	Ph	CF ₂ CI
A456	PhSO	Н	Ph	CF ₂ CI
A457	PhSO ₂	Н	Ph	CF ₂ CI
A458	CH₃S	Н	Ph	CF ₂ CI
A459	CH₃SO	Н	Ph	CF ₂ CI
A460	CF₃	Н	Ph	CF₂CI
A461	F ₂ CH	Н	Ph	CF ₂ CI
A462	HCC	Н	Ph	CF₂CI
A463	CH₃CC	н	Ph	CF ₂ Cl
A464	CH ₂ =CH	н	Ph	CF ₂ CI
A465	CH ₂ =CHCH ₂	Н	Ph	CF ₂ CI
A466	CH₃SO₂N(CH₃)	н	Ph	CF ₂ CI
A467	(CH₃)₂N	н	Ph	CF ₂ CI
A468	(CH ₃) ₂ NSO ₂	Н	Ph	CF ₂ CI
A469	CICH ₂	Н	Ph	CF ₂ CI
A470	CH₃SCH₂	Н	Ph	CF ₂ CI
A471	CH₃SOCH₂	Н	Ph	CF ₂ CI
A472	CH ₃ SO ₂ CH ₂	Н	Ph	CF ₂ CI
A473	· H	Н	Ph	CHF ₂
A474	CH₃	Н	Ph	CHF ₂
A475	CH₃CH₂	Н	Ph	CHF ₂
A476	cyclopropyl	Н	Ph	CHF ₂
A477	(CH₃)₃C	Н	Ph	CHF₂
A478	(CH ₃) ₂ CH	Н	Ph	CHF ₂
A479	$CH_3(CH_2)_2$	Н	Ph	CHF ₂
A480	CH₃OCH₂	Н	Ph	CHF ₂
A481	····· CH ₃ O(CH ₂) ₂	Н	Ph	CHF ₂

Compd.	R 79	R 80	R ₈₁	R ₈₂
no.				
A482	Ph	H	Ph	CHF ₂
A483	PhO	н	Ph	CHF ₂
A484	PhS	н	Ph	CHF ₂
A485	PhSO	Н	Ph	CHF ₂
A486	PhSO ₂	н	Ph	CHF ₂
A487	CH₃S	Н	Ph	CHF ₂
A488	CH₃SO	Н	Ph	CHF ₂
A489	CF ₃	Н	Ph	CHF ₂
A490	F ₂ CH	Н	Ph	CHF ₂
A491	HCC	Н	Ph	CHF ₂
A492	CH₃CC	Н	Ph	CHF ₂
A493	CH ₂ =CH	Н	Ph	CHF ₂
A494	CH ₂ =CHCH ₂	Н	Ph	CHF ₂
A495	CH ₃ SO ₂ N(CH ₃)	н	Ph	CHF ₂
A496	(CH₃)₂N	н	Ph	CHF ₂
A497	(CH3)2NSO2	Н	Ph	CHF ₂
A498	CICH ₂	н	Ph	CHF ₂
A499	CH₃SCH₂	Н	Ph	CHF ₂
A500	CH₃SOCH₂	Н	Ph	CHF ₂
A501	CH₃SO₂CH₂	н	Ph	CHF ₂
A502	Н	Н	Ph	CCI ₃
A503	CH₃	Н	Ph	CCI ₃
A504	CH ₃ CH ₂	H	Ph	CCl ₃ .
A505	cyclopropyl	н	Ph	CCI ₃
A506	(CH₃)₃C	Н	Ph	CCl ₃
A507	(CH₃)₂CH	н	Ph	CCI ₃
A508	$CH_3(CH_2)_2$	Н	Ph	CCI ₃
A509	CH₃OCH₂	Н	Ph	CCI ₃
A510	CH ₃ O(CH ₂) ₂	Н	Ph	CCl ₃
A511	Ph	Н	Ph	CCl ₃
A512	PhO	Н	Ph	CCl ₃
A513	PhS	Н	Ph	CCl ₃

Compd.	R 79	R 80	R ₈₁	R ₈₂
no.				
A514	PhSO	н	Ph	CCl₃
A515	PhSO ₂	н	Ph	CCl ₃
A516	CH₃S	н	Ph	CCl ₃
A517	CH₃SO	н	Ph	CCI ₃
A518	CF ₃	н	Ph	CCl ₃
A519	F ₂ CH	н	Ph	CCl ₃
A520	HCC	н	Ph	CCl₃
A521	CH₃CC	н	Ph	CCl ₃
A522	CH ₂ =CH	H	Ph	CCI ₃
A523	CH ₂ =CHCH ₂	н	Ph	CCl ₃
A524	CH ₃ SO ₂ N(CH ₃)	Н	Ph	CCl ₃
A525	(CH ₃)₂N	Н	Ph	CCl ₃
A526	(CH ₃) ₂ NSO ₂	Н	Ph	CCl ₃
A527	CICH ₂	Н	Ph	CCl ₃
A528	CH₃SCH₂	Н	Ph	CCl ₃
A529	CH₃SOCH₂	Н	Ph	CCl₃
A530	CH ₃ SO ₂ CH ₂	н	Ph	CCl₃
A531	Н	CH ₃	Н	CF₃
A532	Н	CH ₃ CH ₂	Н	CF₃
A533	Н	cyclopropyl	Н	CF ₃
A534	Н	(CH ₃) ₃ CH	Н	CF ₃
A535	Н	(CH ₃) ₂ CH	Н	CF ₃
A536	Н	CH ₃ (CH ₂) ₂	Н	CF ₃
A537	Н	CH₃OCH₂	H	CF ₃
A538	Н	CH ₃ O(CH ₂) ₂	H	CF ₃
A539	H	Ph	Н	CF ₃
A540	Н	PhO	Н	CF ₃
A541	Н	PhS	Н	CF ₃
A542	Н	PhSO	Н	CF ₃
A543	Н	PhSO₂	Н	CF₃
A544	Н	CH₃S	Н	CF ₃
A545	Н	CH₃SO	Н	CF₃

Compd.	R 79	R 80 ·	R ₈₁	R ₈₂
no.				
A546	н	CF ₃	Н	CF ₃
A547	Н	F ₂ CH	Н	CF ₃
A548	Н	HCC	Н	ĈF₃
A549	н	CH₃CC	Н	CF ₃
A550	ŀН	CH ₂ =CH	Н	CF ₃
A551	Н	CH₂=CHCH₂	Н	CF ₃
A552	н	CH ₃ SO ₂ N(CH ₃)	н	CF₃
A553	н	(CH ₃) ₂ N	Н	CF₃
A554	н	(CH ₃) ₂ NSO ₂	Н	CF₃
A555	Н	CH₃SCH₂	н	CF₃
A556	н	CH₃SOCH₂	Н	CF ₃
A557	Н	CH₃SO₂CH₂	Н	CF₃
A558	н	CH₃	Н	CF ₃ CF ₂
A559	. н	CH₃CH₂	Н	CF ₃ CF ₂
A560	н	cyclopropyl	н	CF ₃ CF ₂
A561	н	(CH₃)₃C	Н	CF ₃ CF ₂
A562	н	(CH₃)₂CH	Н	CF ₃ CF ₂
A563	н	$CH_3(CH_2)_2$	Н	CF ₃ CF ₂
A564	Н	CH ₃ OCH ₂	Н	CF ₃ CF ₂
A565	н	CH ₃ O(CH ₂) ₂	Н	CF ₃ CF ₂
A566	н	Ph	Н	CF ₃ CF ₂
A567	н	PhO	Н	CF ₃ CF ₂
A568	Н	PhS	Н	CF ₃ CF ₂
A569	н	PhSO	Н	CF ₃ CF ₂
A570	Н	PhSO ₂	Н	CF ₃ CF ₂
A571	н	CH₃S	Н	CF ₃ CF ₂
A572	Н	CH₃SO	Н	CF ₃ CF ₂
A573	Н	CF ₃	Н	CF ₃ CF ₂
A574	н	F₂CH	Н	CF ₃ CF ₂
A575	Н	HCC	Н	CF ₃ CF ₂
A576	н	CH₃CC	Н	CF ₃ CF ₂
A577	Н	CH ₂ =CH	Н	CF ₃ CF ₂

Compd.	R 79	R ₈₀	R ₈₁	R ₈₂
no.			.	-02
A578	Н	CH ₂ =CHCH ₂	Н	CF ₃ CF ₂
A579	н	CH ₃ SO ₂ N(CH ₃)	Н	CF ₃ CF ₂
A580	н	(CH ₃) ₂ N	Н	CF ₃ CF ₂
A581	н	(CH ₃) ₂ NSO ₂	Н	CF ₃ CF ₂
A582	Н	CH₃SCH₂	Н	CF ₃ CF ₂
A583	н	CH₃SOCH₂	Н	CF ₃ CF ₂
A584	н	CH₃SO₂CH₂	Н	CF ₃ CF ₂
A585	н	CH₃	Н	CF ₃ CF ₂ CF ₂
A586	Н	CH₃CH₂	Н	CF ₃ CF ₂ CF ₂
A587	Н	cyclopropyl	Н	CF ₃ CF ₂ CF ₂
A588	• н	(CH₃)₃C	Н	CF ₃ CF ₂ CF ₂
A589	Н	(CH₃)₂CH	Н	CF ₃ CF ₂ CF ₂
A590	Н	CH ₃ (CH ₂) ₂	Н	CF ₃ CF ₂ CF ₂
A591	Н	CH₃OCH₂	н	CF ₃ CF ₂ CF ₂
A592	Н	CH₃O(CH₂)₂	н	CF ₃ CF ₂ CF ₂
A593	Н	Ph	н	CF ₃ CF ₂ CF ₂
A594	Н	PhO	Н	CF ₃ CF ₂ CF ₂
A595	Н	PhS	Н	CF ₃ CF ₂ CF ₂
A596	Н	PhSO	Н	CF ₃ CF ₂ CF ₂
A597	Н	PhSO ₂	н	CF ₃ CF ₂ CF ₂
A598	Н	CH₃S	Н	CF ₃ CF ₂ CF ₂
A599	Н	CH₃SO	Н	CF ₃ CF ₂ CF ₂
A600	Н	CF₃	н	CF ₃ CF ₂ CF ₂
A601	. Н	F ₂ CH	н	CF₃CF₂CF₂
A602	Н	HCC	Н	CF ₃ CF ₂ CF ₂
A603	н	CH₃CC	Н	CF ₃ CF ₂ CF ₂
A604	н .	CH₂=CH	Н	CF ₃ CF ₂ CF ₂
A605	Н	CH₂=CHCH₂	Н	CF ₃ CF ₂ CF ₂
A606	Н	CH₃SO₂N(CH₃)	Н	CF ₃ CF ₂ CF ₂
A607	Н	(CH₃)₂N	Н	CF ₃ CF ₂ CF ₂
A608	н	(CH ₃) ₂ NSO ₂	Н	CF ₃ CF ₂ CF ₂
A609	Н	CH₃SCH₂	Н	CF ₃ CF ₂ CF ₂

Compd.	R 79	R 80	R ₈₁	R ₈₂
no.				
A610	Н	CH₃SOCH₂	Н	CF ₃ CF ₂ CF ₂
A611	Н	CH₃SO₂CH₂	Н	CF ₃ CF ₂ CF ₂
A612	Н	CH₃	Н	ĈF₂CI
A613	н	CH₃CH₂	Н	CF ₂ Cl
A614	н	cyclopropyl	Н	CF ₂ CI
A615	Н	(CH₃)₃C	Н	CF ₂ Cl
A616	н	(CH₃)₂CH	Н	CF ₂ CI
A617	н	CH ₃ (CH ₂) ₂	Н	CF ₂ CI
A618	H	CH₃OCH₂	Н	CF₂CI
A619	. Н	CH ₃ O(CH ₂) ₂	н	CF ₂ Cl
A620	Н	Ph	н.	CF ₂ Cl
A621	Н	PhO	Н	CF ₂ CI
A622	н	PhS	Н	CF ₂ CI
A623	Н	PhSO	Н	CF ₂ CI
A624	⁻ H	PhSO ₂	Н	CF ₂ CI
A625	н	CH₃S	Н	CF ₂ CI
A626	Н	CH₃SO	Н	CF ₂ Cl
A627	н	CF₃	Н	CF ₂ CI
A628	н	F ₂ CH	Н	CF ₂ CI
A629	Н	HCC	Н	CF ₂ CI
A630	Н	CH₃CC	Н	CF ₂ CI
A631	Н	CH ₂ =CH	Н	CF ₂ CI
A632	Н	CH ₂ =CHCH ₂	Н	CF ₂ CI
A633	н	CH₃SO₂N(CH₃)	Н	CF ₂ Cl
A634	Н	$(CH_3)_2N$	H	CF ₂ CI
A635	Н	(CH ₃)₂NSO₂	Н	CF ₂ Cl
A636	Н	CH₃SCH₂	Н	CF ₂ CI
A637	н	CH ₃ SOCH ₂	Н	CF ₂ CI
A638	н	CH₃SO₂CH₂	Н	CF ₂ CI
A639	Н	CH₃	Н	CHF ₂
A640	н	CH₃CH₂	Н	CHF ₂
A641	Н	cyclopropyl	Н	CHF ₂

Compd.	R 79	R 80	R ₈₁	R ₈₂
no.				
A642	Н	(CH₃)₃C	Н	CHF ₂
A643	н	(CH₃)₂CH	н	CHF ₂
A644	н	CH ₃ (CH ₂) ₂	н	CHF ₂
A645	н	CH₃OCH₂	Н	CHF ₂
A646	Н	CH ₃ O(CH ₂) ₂	Н	CHF ₂
A647	Н	Ph	Н	CHF ₂
A648	Н	PhO	Н	CHF ₂
A649	Н	PhS	Н	CHF ₂
A650	Н	PhSO	Н	CHF ₂
A651	Н	PhSO ₂	н.	CHF ₂
A652	Н	CH₃S	Н	CHF ₂
A653	Н	CH₃SO	н	CHF ₂
A654	н	CF₃	Н	CHF ₂
A655	н	F₂CH	' н	CHF ₂
A656	н	HCC	Н	CHF ₂
A657	Н	CH₃CC	Н	CHF ₂
A658	Н	CH₂=CH	н	CHF ₂
A659	Н	CH₂=CHCH₂	Н	CHF ₂
A660	H	CH₃SO₂N(CH₃)	Н	CHF ₂
A661	н	(CH₃)₂N	Н	CHF ₂
A662	н	(CH ₃) ₂ NSO ₂	Н	CHF ₂
A663	Н	CH₃SCH₂	Н	CHF ₂
A664	Н	CH ₃ SOCH ₂	Н	CHF₂
A665	Н	CH ₃ SO ₂ CH ₂	Н	CHF₂
A666	Н	CH ₃	· н	CCl ₃
A667	Н	CH₃CH₂	Н	CCl ₃
A668	Н	cyclopropyl	Н	CCl₃
A669	Н	(CH₃)₃C	Н	CCl ₃
A670	Н	(CH₃)₂CH	Н	CCl ₃
A671	н	CH ₃ (CH ₂) ₂	Н	CCl₃
A672	н	CH₃OCH₂	Н	CCl₃
A673	H	CH ₃ O(CH ₂) ₂	Н	CCl₃

Compd.	R 79		R 80	R ₈₁	R ₈₂
no.					
A674	Н		Ph	Н	CCl ₃
A675	Н		PhO	Н	CCl ₃
A676	Н		PhS	Н	ĈCl₃
A677	Н		PhSO	Н	CCl ₃
A678	Н		PhSO ₂	Н	CCI ₃
A679	Н		CH₃S	Н	CCl ₃
A680	Н		CH₃SO	н	CCI ₃
A681	Н		CF₃	Н	CCl ₃
A682	Н		F₂CH	Н	CCl ₃
A683	Н		HCC	Н	CCl ₃
A684	Н		CH₃CC	ŀН	CCI ₃
A685	Н		CH ₂ =CH	Н	CCl ₃
A686	Н		CH ₂ =CHCH ₂	Н	CCl ₃
A687	Н		$CH_3SO_2N(CH_3)$	Н	CCl ₃
A688	Н		(CH ₃) ₂ N	Н	CCl ₃
A689	Н		$(CH_3)_2NSO_2$	Н	CCl ₃
A690	Н		CH₃SCH₂	Н	CCl₃
A691	Н		CH₃SOCH₂	н	CCl ₃
A692	Н		CH₃SO₂CH₂	Н	CCl ₃
A693	Н		CH₃	CH ₃	CF ₃
A694	Н		CH₃CH₂	CH ₃	CF ₃
A695	Н		cyclopropyl	CH₃	CF ₃
A696	H		(CH₃)₃C	CH₃	CF ₃
A697	Н		(CH₃)₂CH	CH₃	CF ₃
A698	Н		CH ₃ (CH ₂) ₂	CH₃	CF₃
A699	Н		CH₃OCH₂	CH ₃	CF₃
A700	Н	•	$CH_3O(CH_2)_2$	CH₃	CF ₃
A701	Н		Ph	CH ₃	CF ₃
A702	Н		PhO	CH ₃	CF ₃
A703	Н		PhS	CH₃	CF ₃
A704	Н		PhSO	СН₃	CF ₃
A705	 Н		PhSO ₂	CH₃	CF₃

Compd.	R ₇₉	R 80	R ₈₁	R ₈₂
no.				
A706	н	CH₃S	СН₃	CF₃
A707	н	CH₃SO	СН₃	CF₃
A708	Н	CF₃	СН₃	℃F₃
A709	Н	F₂CH	CH₃	CF₃
A710	Н	HCC	СН₃	CF₃
A711	н	CH₃CC	CH₃	CF₃
A712	Н	CH₂=CH	СН₃	CF₃
A713	н	CH ₂ =CHCH ₂	СН₃	CF₃
A714	Н	CH₃SO₂N(CH₃)	СН₃	CF₃
A715	Н	(CH₃)₂N	СН₃	CF ₃
A716	Н	(CH ₃) ₂ NSO ₂	СНз	CF ₃
A717	н	CH₃SCH₂	CH₃	CF ₃
A718	Н	CH₃SOCH₂	CH₃	CF ₃
A719	н	CH ₃ SO ₂ CH ₂	CH₃	CF ₃
A720	н	CH ₃	CH₃	CF ₃ CF ₂
A721	Н	CH ₃ CH ₂	CH₃	CF ₃ CF ₂
A722	Н	cyclopropyl	CH ₃	CF ₃ CF ₂
A723	Н	(CH₃)₃C	CH ₃	CF ₃ CF ₂
A724	Н	(CH₃)₂CH	CH ₃	CF ₃ CF ₂
A725	H	CH ₃ (CH ₂) ₂	. CH₃	CF ₃ CF ₂
A726	Н	CH ₃ OCH ₂	CH ₃	CF ₃ CF ₂
A727	Н	CH ₃ O(CH ₂) ₂	CH₃	CF3CF2
A728	H	Ph	CH₃	CF ₃ CF ₂
A729	Н	PhO	CH₃	CF ₃ CF ₂
A730	Н	PhS	CH₃	CF ₃ CF ₂
A731	Н	PhSO	CH₃	CF ₃ CF ₂
A732	Н	PhSO ₂	CH₃	CF ₃ CF ₂
A733	Н	CH₃S	CH ₃	CF ₃ CF ₂
A734	Н	CH₃SO	CH₃	CF ₃ CF ₂
A735	н	CF ₃	CH₃	CF ₃ CF ₂
A736	н	F ₂ CH	CH₃	CF ₃ CF ₂
A737	Н	HCC	CH₃	CF ₃ CF ₂

Compd.	R 79	R 80	R ₈₁	R ₈₂
no.				
A738	Н	CH₃CC	CH₃	CF ₃ CF ₂
A739	Н	CH ₂ =CH	CH ₃	CF ₃ CF ₂
A740	Н	CH ₂ =CHCH ₂	CH ₃	CF ₃ CF ₂
A741	н	CH₃SO₂N(CH₃)	CH ₃	CF ₃ CF ₂
A742	н	(CH ₃) ₂ N	CH ₃	CF ₃ CF ₂
A743	Н	(CH ₃) ₂ NSO ₂	CH ₃	CF ₃ CF ₂
A744	н	CH₃SCH₂	CH₃	CF ₃ CF ₂
A745	Н	CH ₃ SOCH ₂	CH ₃	CF ₃ CF ₂
A746	Н	CH₃SO₂CH₂	CH ₃	CF ₃ CF ₂
A747	Н	CH₃	CH ₃	CF ₃ CF ₂ CF ₂
A748	н	CH₃CH₂	CH₃	CF ₃ CF ₂ CF ₂
A749	Н	cyclopropyl	CH ₃	CF ₃ CF ₂ CF ₂
A750	Н	$(CH_3)_3C$	CH ₃	CF ₃ CF ₂ CF ₂
A751	н	(CH ₃) ₂ CH	CH ₃	CF ₃ CF ₂ CF ₂
A752	н	CH ₃ (CH ₂) ₂	CH ₃	CF ₃ CF ₂ CF ₂
A753	Н	CH₃OCH₂	CH ₃	CF ₃ CF ₂ CF ₂
A754	н	CH ₃ O(CH ₂) ₂	CH ₃	CF ₃ CF ₂ CF ₂
A755	Н	Ph	CH ₃	CF ₃ CF ₂ CF ₂
A756	Н	PhO	CH₃	CF ₃ CF ₂ CF ₂
A757	н	PhS	CH₃	CF ₃ CF ₂ CF ₂
A758	Н	PhSO	CH₃	CF ₃ CF ₂ CF ₂
A759	Н	PhSO₂	CH₃	CF ₃ CF ₂ CF ₂
A760	Н	CH₃S	СН₃	CF ₃ CF ₂ CF ₂
A761	3 H	CH₃SO	CH ₃	CF ₃ CF ₂ CF ₂
A762	· H	CF ₃	CH ₃	CF ₃ CF ₂ CF ₂
A763	н	F ₂ CH	CH ₃	CF ₃ CF ₂ CF ₂
A764	Н	HCC	CH₃	CF ₃ CF ₂ CF ₂
A765	Н	CH₃CC	CH₃	CF ₃ CF ₂ CF ₂
A766	н	CH₂=CH	CH₃	CF ₃ CF ₂ CF ₂
A767	н	CH₂=CHCH₂	CH ₃	CF ₃ CF ₂ CF ₂
A768	н	CH₃SO₂N(CH₃)	CH ₃	CF ₃ CF ₂ CF ₂
A769	H	(CH ₃) ₂ N	CH₃	CF ₃ CF ₂ CF ₂

Compd.		R 79	R 80	R ₈₁	R ₈₂
no.					
A770		Н	(CH ₃) ₂ NSO ₂	СН₃	CF ₃ CF ₂ CF ₂
A771		Н	CH ₃ SCH ₂	CH₃	CF₃CF₂CF₂
A772		Н	CH₃SOCH₂	CH₃	CF ₃ CF ₂ CF ₂
A773		Н	CH ₃ SO ₂ CH ₂	CH₃	CF ₃ CF ₂ CF ₂
A774		Н	CH₃	СН₃	CF ₂ Cl
A775		Н	CH₃CH₂	СН₃	CF ₂ CI
A776		Н	cyclopropyl	СН₃	CF ₂ Cl
A777		Н	(CH ₃) ₃ C	СН₃	CF ₂ CI
A778	-	Н	(CH ₃) ₂ CH	СН₃	CF ₂ Cl
A779		Н	CH ₃ (CH ₂) ₂	СН₃	CF ₂ Cl
A780		Н	CH₃OCH₂	СН₃	CF ₂ CI
A781		Н	CH₃O(CH₂)₂	CH ₃	CF ₂ CI
A782		Н	Ph	СН₃	CF₂CI
A783		Н	PhO	CH₃	CF ₂ Cl
A784		Н	PhS	CH ₃	CF₂Cl
A785		Н	PhSO	CH ₃	CF₂CI
A786		Н	PhSO ₂	СН₃	CF ₂ CI
A787		Н	CH₃S	СН₃	CF ₂ CI
A788		Н	CH₃SO	CH₃	CF ₂ CI
A789		Н	CF ₃	CH₃	CF ₂ CI
A790		Н	F ₂ CH	CH ₃	CF ₂ CI
A791		Н	HCC	CH ₃	CF ₂ CI
A792		Н	CH₃CC	CH ₃	CF ₂ CI
A793		Н	CH₂=CH	CH₃	CF ₂ CI
A794		Н	CH ₂ =CHCH ₂	CH₃	CF ₂ CI
A795		Н	CH ₃ SO ₂ N(CH ₃)	CH₃	CF ₂ CI
A796		Н	$(CH_3)_2N$	CH₃	CF ₂ CI
A797		H	(CH ₃)₂NSO₂	CH₃	CF₂CI
A798		Н	CH₃SCH₂	CH₃	CF ₂ CI
A799		Н	CH₃SOCH₂	CH₃	CF ₂ CI
A800		Н	CH ₃ SO ₂ CH ₂	CH ₃	CF ₂ CI
A801	*****	Н	CH₃	CH ₃	CHF ₂

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Compd.	R 79	R 80	R ₈₁	R ₈₂
no.				
A802	н	CH₃CH₂	CH₃	CHF ₂
A803	н	cyclopropyl	CH₃	CHF ₂
A804	н	(CH₃)₃C	CH₃	ĈHF₂
A805	Н	(CH ₃) ₂ CH	CH₃	CHF ₂
A806	н	$CH_3(CH_2)_2$	CH ₃	CHF ₂
A807	н	CH ₃ OCH ₂	CH₃	CHF ₂
808A	Н	CH ₃ O(CH ₂) ₂	CH ₃	CHF ₂
A809	Н	Ph	CH ₃	CHF ₂
A810	н	PhO	CH₃	CHF ₂
A811	. Н	PhS	CH ₃	CHF ₂
A812	н	PhSO	CH₃	CHF ₂
A813	н	PhSO ₂	CH₃	CHF ₂
A814	Н	CH₃S	CH ₃	CHF ₂
A815	Н	CH₃SO	CH ₃	CHF₂
A816	Н	CF ₃	CH ₃	CHF ₂
A817	н	F ₂ CH	CH ₃	CHF ₂
A818	н	HCC	CH ₃	CHF ₂
A819	Н	CH₃CC	CH ₃	CHF ₂
A820	Н	. CH₂=CH	CH₃	CHF ₂
A821	Н	CH ₂ =CHCH ₂	CH₃	CHF ₂
A822	Н	CH₃SO₂N(CH₃)	CH₃	CHF ₂
A823	Н	(CH₃)₂N	CH₃	CHF ₂
A824	H	$(CH_3)_2NSO_2$	CH ₃	CHF ₂
A825	Н	CH₃SCH₂	CH ₃	CHF ₂
A826	H	CH₃SOCH₂	CH ₃	CHF ₂
A827	Н	CH₃SO₂CH₂	CH₃	CHF ₂
A828	Н	CH₃	CH ₃	CCl₃
A829	Н	CH₃CH₂	CH ₃	CCI ₃
A830	Н	cyclopropyl	CH ₃	CCl₃
A831	Н	(CH₃)₃C	CH₃	CCl₃
A832	Н	(CH ₃) ₂ CH	CH ₃	CCI ₃
A833	Н	$CH_3(CH_2)_2$	CH ₃	CCl ₃

Compd.	R 79	R 80	R ₈₁	R ₈₂
no.				
A834	Н	CH₃OCH₂	CH₃	CCI ₃
A835	Н	CH ₃ O(CH ₂) ₂	CH₃	CCl ₃
A836	н	Ph	CH₃	TCCI ₃
A837	н	PhO	CH₃	CCl ₃
A838	Н	PhS	СН₃	CCI ₃
A839	Н	PhSO	CH₃	CCI ₃
A840	Н	PhSO₂	CH₃	CCl₃
A841	Н	CH₃S	CH₃	CCI ₃
A842	$\mathcal{L} \sim \mathbf{H}$	CH₃SO	CH ₃	CCl ₃
A843	Н	CF ₃	СН₃	CCI ₃
A844	Н	F ₂ CH	CH₃	CCl ₃
A845	H -	HCC	СН₃	CCI ₃
A846	H	CH₃CC	CH₃	CCl ₃
A847	Н	CH ₂ =CH	CH₃	CCl₃
A848	Н	CH ₂ =CHCH ₂	CH₃	CCl ₃
A849	Н	CH ₃ SO ₂ N(CH ₃)	CH ₃	CCl ₃
A850	Н	(CH₃)₂N	CH₃	CCl ₃
A851	Н	(CH₃)₂NSO₂	CH₃	CCl ₃
A852	Н	CH₃SCH₂	CH ₃	CCl ₃
A853	Н	CH₃SOCH₂	CH₃	CCl ₃
A854	Н	CH₃SO₂CH₂	CH₃	CCl ₃
A855	Н	CH₃	Ph	CF ₃
A856	Н	CH₃CH₂	Ph	CF ₃
A857	H .	(CH₃)₂CH	Ph	CF ₃
A858	Н	(CH₃)₂CH	Ph	CF ₃
A859	· H	cyclopropyl	Ph	CF ₃
A860	н	CH ₃ (CH ₂) ₂	Ph-	CF ₃
A861	Н	CH₃OCH₂	Ph	CF ₃
A862	Н	CH ₃ O(CH ₂) ₂	Ph	CF ₃
A863	Н	Ph	Ph	CF ₃
A864	н	PhO	Ph	CF ₃
A865	Н	PhS	Ph	CF ₃

Compd.	R 79	R 80	R ₈₁	R ₈₂
no.				
A866	Н	PhSO	Ph	CF ₃
A867	Н	PhSO ₂	Ph	CF ₃
A868	Н	CH₃S	Ph	ĈF₃
A869	Н	CH₃SO	Ph	CF ₃
A870	Н	CF ₃	Ph	CF ₃
A871	н	F₂CH	₽h	CF₃
A872	н	HCC	Ph	CF ₃
A873	н	CH₃CC	Ph	CF ₃
A874	н	CH ₂ =CH	Ph	CF ₃
A875	Н	CH ₂ =CHCH ₂	Ph	CF ₃
A876	. Н	CH₃SO₂N(CH₃)	Ph	CF ₃
A877	Н	(CH ₃) ₂ N	Ph	CF ₃
A878	Н	$(CH_3)_2NSO_2$	Ph	CF ₃
A879	Н	CH₃SCH₂	Ph	CF ₃
A880	Н	CH₃SOCH₂	Ph	CF ₃
A881	н	CH ₃ SO ₂ CH ₂	Ph	CF ₃
A882	Н	CH₃	Ph	CF ₃ CF ₂
A883	Н	CH₃CH₂	Ph	CF ₃ CF ₂
A884	н	cyclopropyl	Ph	CF ₃ CF ₂
A885	Н	(CH₃)₃C	Ph	CF ₃ CF ₂
A886	н	(CH₃)₂CH	Ph	CF ₃ CF ₂
A887	н	CH ₃ (CH ₂) ₂	Ph	CF ₃ CF ₂
888A	н	CH₃OCH₂	Ph	CF ₃ CF ₂
A889	Н	CH ₃ O(CH ₂) ₂	Ph	CF ₃ CF ₂
A890	н	Ph	Ph	CF ₃ CF ₂
A891	Н	PhO	Ph	CF ₃ CF ₂
A892	H	PhS	Ph	CF ₃ CF ₂
A893	Н	PhSO	Ph	CF ₃ CF ₂
A894	н	PhSO₂	Ph	CF ₃ CF ₂
A895	Н	CH₃S	Ph	CF ₃ CF ₂
A896	н	CH₃SO	Ph	CF ₃ CF ₂
A897	Н	CF ₃	Ph	CF ₃ CF ₂

Compd.	R ₇₉	R 80	R ₈₁	R ₈₂
no.				
A898	н	F ₂ CH	Ph	CF ₃ CF ₂
A899	н	HCC	Ph	CF ₃ CF ₂
A900	н	CH₃CC	Ph	ĈF₃CF₂
A901	Н	CH ₂ =CH	Ph	CF ₃ CF ₂
A902	Н	CH ₂ =CHCH ₂	Ph	CF₃CF₂
A903	Н	CH₃SO₂N(CH₃)	Ph	CF ₃ CF ₂
A904	Н	(CH₃)₂N	Ph	CF ₃ CF ₂
A905	н	(CH ₃) ₂ NSO ₂	Ph	CF ₃ CF ₂
A906	Н	CH₃SCH₂	Ph	CF ₃ CF ₂
A907	Н	CH₃SOCH₂	Ph	CF ₃ CF ₂
A908	н	CH₃SO₂CH₂	Ph	CF ₃ CF ₂
A909	Н	CH₃	Ph	CF ₃ CF ₂ CF ₂
A910	Н	CH₃CH₂	Ph	CF ₃ CF ₂ CF ₂
A911	н	cyclopropyi	Ph	CF ₃ CF ₂ CF ₂
A912	н	(CH₃)₃C	Ph	CF ₃ CF ₂ CF ₂
A913	Н	(CH ₃) ₂ CH	Ph	CF ₃ CF ₂ CF ₂
A914	н	$CH_3(CH_2)_2$	Ph	CF ₃ CF ₂ CF ₂
A915	Н	CH₃OCH₂	Ph	CF ₃ CF ₂ CF ₂
A916	Н	$CH_3O(CH_2)_2$	Ph	CF ₃ CF ₂ CF ₂
A917	Н	Ph	Ph	CF ₃ CF ₂ CF ₂
A918	Н	PhO	Ph	CF ₃ CF ₂ CF ₂
A919	Н	PhS	Ph	CF ₃ CF ₂ CF ₂
A920	Н	PhSO	Ph	CF ₃ CF ₂ CF ₂
A921	Н	PhSO ₂	Ph	CF ₃ CF ₂ CF ₂
A922	H	CH₃S	Ph	CF ₃ CF ₂ CF ₂
A923	Н	CH₃SO	Ph	CF ₃ CF ₂ CF ₂
A924	н	CF₃	Ph	CF ₃ CF ₂ CF ₂
A925	Н	F ₂ CH	Ph	CF ₃ CF ₂ CF ₂
A926	Н	HCC	Ph	CF ₃ CF ₂ CF ₂
A927	Н	CH₃CC	Ph	CF ₃ CF ₂ CF ₂
A928	Н	CH₂=CH	Ph	CF ₃ CF ₂ CF ₂
A929	H	CH ₂ =CHCH ₂	Ph	CF ₃ CF ₂ CF ₂

Compd.	R 79	R 80	R ₈₁	R ₈₂
no.	, ,		-	-
A930	н	CH₃SO₂N(CH₃)	Ph	CF ₃ CF ₂ CF ₂
A931	Н	(CH ₃) ₂ N	Ph	CF ₃ CF ₂ CF ₂
A932	н	(CH ₃) ₂ NSO ₂	Ph	CF ₃ CF ₂ CF ₂
A933	Н	CH₃SCH₂	Ph	CF ₃ CF ₂ CF ₂
A934	н	CH₃SOCH₂	Ph	CF ₃ CF ₂ CF ₂
A935	н	CH₃SO₂CH₂	Ph	CF ₃ CF ₂ CF ₂
A936	Н	CH₃	Ph	CF₂CI
A937	н	CH₃CH₂	Ph	CF₂CI
A938	н	cyclopropyl	Ph	CF₂CI
A939	н	(CH₃)₃C	Ph	CF ₂ CI
A940	н	(CH₃)₂CH	Ph	CF₂CI
A941	Н	CH ₃ (CH ₂) ₂	Ph	CF₂CI
A942	н	CH₃OCH₂	Ph	CF ₂ CI
A943	н	CH ₃ O(CH ₂) ₂	Ph	CF ₂ CI
A944	н	Ph	Ph	CF₂CI
A945	Н	PhO	Ph	CF ₂ Cl
A946	Н	PhS	Ph	CF ₂ CI
A947	Н	PhSO	Ph	CF ₂ CI
A948	Н	PhSO ₂	Ph	CF ₂ CI
A949	Н	CH₃S	Ph	CF ₂ Cl
A950	Н	CH₃SO	Ph	CF ₂ CI
A951	н	CF ₃	Ph	CF ₂ CI
A952	Н	F ₂ CH	Ph	CF ₂ CI
A953	Н	HCC	Ph	CF ₂ Cl
A954	Н	CH₃CC	Ph	CF ₂ CI
A955	Н	CH₂=CH	Ph	CF ₂ CI
A956	Н	CH ₂ =CHCH ₂	Ph	CF ₂ Cl
A957	Н	CH ₃ SO ₂ N(CH ₃)	Ph	CF ₂ CI
A958	Н	(CH₃)₂N	Ph	CF ₂ CI
A959	Н	(CH ₃) ₂ NSO ₂	Ph	CF ₂ CI
A960	н	CH₃SCH₂	Ph	CF ₂ Cl
A961	Н	CH ₃ SOCH ₂	Ph	CF ₂ CI

R ₇₉ H H H	R ₈₀ CH₃SO₂CH₂ CH₃	R ₈₁ Ph	R ₈₂
Н		Ph	CF ₂ CI
Н		Ph	CF ₂ CI
	CH ₃		-· <u>-</u> - ·
Н	_	Ph	CHF ₂
	CH₃CH₂	Ph	CHF ₂
Н	(CH₃)₃C	Ph	CHF ₂
Н	(CH₃)₂CH	Ph	CHF ₂
Н	cyclopropyl	Ph	CHF ₂
Н	CH₃(CH₂)₂	Ph	CHF ₂
Н	CH₃OCH₂	Ph	CHF ₂
Н	CH ₃ O(CH ₂) ₂	Ph	CHF ₂
Н	Ph	Ph	CHF ₂
Н	PhO	Ph	CHF ₂
Н	PhS	Ph	CHF ₂
Н	PhSO	Ph	CHF ₂
Н	PhSO ₂	Ph	CHF₂
Н	CH₃S	Ph	CHF ₂
Н	CH₃SO	Ph	CHF₂
Н	CF₃	Ph	CHF ₂
Н	F₂CH	Ph	CHF ₂
Н	HCC	Ph	CHF₂
Н	CH₃CC	Ph	CHF ₂
Н	CH₂=CH	Ph	CHF ₂
Н	CH ₂ =CHCH ₂	Ph	CHF ₂
Н	CH ₃ SO ₂ N(CH ₃)	Ph	CHF₂
Н	(CH ₃) ₂ N	Ph	CHF ₂
Н	$(CH_3)_2NSO_2$	Ph	CHF ₂
Н	CH₃SCH₂	Ph	CHF ₂
Н	CH₃SOCH₂	Ph	CHF ₂
Н	CH₃SO₂CH₂	Ph	CHF ₂
Н	CH₃	Ph	CCl ₃
Н	CH₃CH₂	Ph	CCI ₃
Н	(CH₃)₃C	Ph	CCl₃
Н	(CH₃)₂CH	Ph	CCl ₃
		H (CH ₃) ₃ C H (CH ₃) ₂ CH H cyclopropyl H Cyclopropyl H CH ₃ (CH ₂) ₂ H CH ₃ O(CH ₂) ₂ H CH ₃ O(CH ₂) ₂ H Ph H PhO H PhSO H PhSO H CH ₃ SO H CF ₃ H CH ₃ SO H CF ₃ H CH ₂ =CH H CH ₂ =CH H CH ₂ =CHCH ₂ H CH ₃ SO ₂ N(CH ₃) H (CH ₃) ₂ N H (CH ₃ SO ₂ CH ₂ H CH ₃ SO ₂ CH ₂	H CH₃CH₂ Ph H (CH₃)₃C Ph H (CH₃)₂CH Ph H cyclopropyl Ph H CH₃(CH₂)₂ Ph H CH₃(CH₂)₂ Ph H CH₃OCH₂ Ph H Ph Ph H Ph Ph H PhO Ph H PhSO Ph H PhSO₂ Ph H CH₃SO Ph

Compd.	R 79	R 79 R 80		R ₈₂
no.				
A994	н	cyclopropyl	Ph	CCl ₃
A995	Н	$CH_3(CH_2)_2$	Ph	CCl ₃
A996	Н	CH₃OCH₂	Ph	ĈCl₃
A997	Н	$CH_3O(CH_2)_2$	Ph	CCI ₃
A998	Н	Ph	Ph	CCI ₃
A999	Н	PhO	Ph	CCI ₃
A1000	Н	PhS	Ph	CCl₃
A1001	Н	PhSO	Ph	CCl ₃
A1002	Н	PhSO ₂	Ph	CCI ₃
A1003	Н	CH₃S	Ph	CCl ₃
A1004	Н	CH₃SO	Ph	CCI ₃
A1005	Н	CF ₃	Ph	CCl ₃
A1006	н	F ₂ CH	Ph	CCI ₃
A1007	. H	HCC	Ph	CCl ₃
A1008	Н	CH₃CC	Ph	CCl ₃
A1009	Н	CH ₂ =CH	Ph	CCl ₃
A1010	Н	CH₂=CHCH₂	Ph	CCI ₃
A1011	Н	CH₃SO₂N(CH₃)	Ph	CCI ₃
A1012	Н	(CH₃) ₂ N	Ph	CCI ₃
A1013	Н ,	(CH ₃) ₂ NSO ₂	Ph	CCl₃
A1014	Н	CH₃SCH₂	₽h	CCI ₃
A1015	н	CH₃SOCH₂	Ph	CCl₃
A1016	. н	CH₃SO₂CH₂	Ph	CCl ₃
A1017	F	Н	Н	CF ₃
A1018	CI	Н	Н	CF₃
A1019	Br	н	Н	CF₃
A1020	CN	H	Н	CF ₃
A1021	CH₃SO₂O	Н	Н	CF ₃
A1022	CH₃O	Н	Н	CF ₃
A1023	CH₂CH₃O	Н	Н	CF ₃
A1024	CH ₂ CH=CH ₂ O	Н	Н	CF ₃
A1025	HCCCH₂O	Н	Н	CF ₃

Compd.	R ₇₉	R 80	R ₈₁	R ₈₂
no.				
A1026	S-benzyl	Н	Н	CF₃
A1027	SO ₂ -benzyl	н	н	CF₃
A1028	CICH₂	н	Н	CF ₃
A1029	BrCH₂	н	Н	CF₃
A1030	FCH ₂	н	H.	CF ₃
A1031	CHF ₂ CH ₂	н	Н	CF₃
A1032	CF₃CH₂	н	Н	CF₃
A1033	triazolylmethyl	н	Н	CF₃
A1034	CHCl ₂ CH ₂	H.	H	CF ₃
A1035	CICH=CH	н	Н	CF₃
A1036	Cl ₂ C=CH	н	Н	CF₃
A1037	CF₃CH=CH	Н	Н	CF ₃
A1038	CICC	Н	Н	CF ₃
A1039	Ph	Н	Н	CF ₃
A1040	CH₃	CH₃	Н	CF₃
A1041	CH₃	ОН	Н	CF ₃
A1042	CH₃	F	Н	CF ₃
A1043	CH₃	CI	Н	CF ₃
A1044	F	CH ₃	Н	CF ₃
A1045	CI	CH ₃	Н	CF ₃
A1046	Н	F	Н	CF ₃
A1047	Н	CI	Н	CF ₃
A1048	Н	Br	Н	CF ₃
A1049	Н	ОН	H	CF ₃
A1050	Ή	OCH ₃	Н	CF ₃
A1051	н	OCHF ₂	Н	CF₃
A1052	Н	OSO ₂ CH ₃	Н	CF₃
A1053	Н	OSO ₂ CF ₃	Н	CF ₃
A1054	Н	CICH₂	Н	CF₃
A1055	Н	BrCH₂	Н	CF ₃
A1056	Н	FCH₂	Н	CF ₃
A1057	Н	CHF₂CH₂	Н	CF ₃

				~~~~
Compd.	R 79	R 80	R ₈₁	R ₈₂
no.				
A1058	Н	CF₃CH₂	Н	CF ₃
A1059	н	triazolylmethyl	Н	CF ₃
A1060	Н	CHCl ₂ CH ₂	H	ĈF₃
A1061	Н	CICH=CH	Н	CF ₃
A1062	Н	Cl ₂ C=CH	Н	CF ₃
A1063	Н	CF₃CH=CH	H	CF ₃
A1064	Н	CICC	Н	CF ₃
A1065	Н	CH₃C(O)	H .	CF₃
A1066	Н	phenyl	Н	CF ₃
A1067	Н	SO ₂ CH ₃	Н	CF ₃
A1068	н	SO ₂ CF ₃	Н	CF ₃
A1069	н	CN	Н	CF ₃
A1070	Н	NO ₂	Н	CF ₃
A1071	CH₃	Н	F	CF ₃
A1072	CH ₃	н	CI	CF ₃
A1073	CH₃	н	Br	CF ₃
A1074	CH₃	н	CN	CF₃
A1075	CH₃	н	CH ₃ O	CF ₃
A1076	CH₃	н	CH₃S	CF₃
A1077	CH₃	н	CH₃SO	CF ₃
A1078	CH₃	н	CH ₃ SO ₂	CF₃

In the following Table 6 Q is Q₃

and  $Q_3$  represents the following radicals B:

## Table 6: Radicals B:

Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	R ₄₀	w
B1	Н	Н	Н	Н	ОН	CH₂
B2	CH₃	Н	Н	Н	ОН	CH ₂
B3	CH ₃ CH ₂	Н	Н	Н	ОН	CH ₂
B4	CH₃CH₂CH₂	Н	Н	Н	ОН	CH₂
B5	(CH ₃ ) ₂ CH	Н	Н	Н	OH	CH ₂
B6	(CH ₃ ) ₃ C	Н	Н	Н	ОН	CH ₂
B7	CH₃S	H	Н	Н	ОН	CH ₂
B8	CH₃SO	Н	Н.	Н	ОН	CH ₂
<b>B</b> 9	CH₃SO₂	Н	Н	Н	OH-	CH ₂
B10	Ph	Н	Н	Н	ОН	CH ₂
B11	CH₃O	Н	Н	Н	ОН	CH ₂
B12	CH₃CO₂	Н	Н	Н	ОН	CH ₂
B13	CH₃CH₂CO₂	Н	Н	Н	ОН	CH ₂
B14	CH ₂ =CHCH ₂	Н	Н	Н	ОН	CH ₂
B15	HCCCH₂	Н	Н	Н	ОН	CH ₂
B16	CF ₃	Н	Н	Н	ОН	CH ₂
B17	(CH ₃ )₂NSO ₂	Н	Н	Н	ОН	CH₂
B18	(CH ₃ )₂N	Н	Н	Н	ОН	CH ₂
B19	PhO	Н	H,	Н	ОН	CH ₂
B20	PhS	Н	H	H	ОН	CH ₂
B21	PhSO	·H	Н	Н	ОН	CH ₂
B22	PhSO ₂	Н	Н	Н	ОН	CH ₂
B23	CN	Н	Н	Н	ОН	CH₂
B24	CH₃	CH _{3.}	Н	Н	OH	CH ₂
B25	CH₃CH₂	CH₃	H	Н	ОН	CH ₂
B26	CH₃CH₂CH₂	CH₃	Н	Н	ОН	CH ₂
B27	(CH₃)₂CH	CH ₃	H	Н	ОН	CH ₂
B28	(CH₃)₃C	CH₃	Н	Н	ОН	CH ₂
B29	CH₃S	CH₃	Н	Н	ОН	CH ₂
B30	CH₃SO	CH ₃	Н	Н	ОН	CH ₂
B31	CH₃SO₂	CH ₃	Н	Н	ОН	CH ₂
B32	Ph	CH ₃	Н	Н	ОН	CH₂

Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	R ₄₀	W
B33	CH₃O	СН₃	Н	Н	ОН	CH ₂
B34	CH₃CO₂	CH₃	Н	Н	ОН	CH ₂
B35		CH₃	Н	Н	ОН	CH ₂
B36	CH ₂ =CHCH ₂	CH₃	Н	Н	ОН	CH₂ ¯
B37	HCCCH₂	CH ₃	Н	Н	ОН	CH ₂
B38	CF ₃	CH₃	Н	Н	ОН	CH ₂
B39	(CH ₃ ) ₂ NSO ₂	CH₃	H	Н	ОН	CH ₂
B40	(CH₃)₂N	CH ₃	Н	Н	ОН	CH ₂
B41	PhO	CH₃	Н	Н	ОН	CH₂
B42	PhS	CH₃	Н	Н	ОН	CH₂
B43	PhSO	CH₃	Н	Н	ОН	CH ₂
B44	PhSO ₂	CH₃	Н	Н	ОН	CH₂
B45	CN	CH₃	Н	Н	ОН	· CH ₂
B46	CH₃	Η.	CH₃	Н	ОН	CH ₂
B47	CH₃CH₂	Н	CH₃	Н	ОН	CH ₂
B48	CH ₃ CH ₂ CH ₂	Н	CH₃	Н	ОН	CH₂
B49	(CH₃)₂CH	Н	CH ₃	Н	ОН	CH ₂
B50	(CH ₃ ) ₃ C	Н	СH _з	Н	ОН	CH ₂
B51	CH₃S	Н	CH₃	Н	ОН	CH ₂
B52	CH₃SO	Н	CH ₃	Н	ОН	CH ₂
B53	CH₃SO₂	Н	CH ₃	Н	OH.	CH ₂
B54	Ph	н	CH₃	Ή	ОН	CH ₂
B55	CH ₃ O	Н	CH₃	Н	ОН	CH ₂
B56	CH ₃ CO ₂	Н	CH₃	H	ОН	CH ₂
B57	CH₃CH₂CO₂	Н	CH₃	Н	ОН	CH ₂
B58	CH ₂ =CHCH ₂	Н	CH₃	Н	ОН	CH ₂
B59	HCCCH₂	Н	CH ₃	Н	ОН	CH ₂
B60	CF ₃	Н	CH₃	Н	ОН	CH ₂
B61 ·	$(CH_3)_2NSO_2$	Н	СН₃	H	ОН	CH ₂
B62	· (CH ₃ ) ₂ N	Н	СН₃	Н	ОН	CH ₂
B63	PhO	Н	СН₃	Н	ОН	CH₂
B64	PhS	Н	СН₃	Η.	ОН	CH ₂
B65	PhSO	н	СН₃	Н	ОН	CH₂

<b>.</b>						
Radical	R ₄₄	R ₃₇	$R_{38}$	$R_{39}$	$R_{40}$	W
B66	PhSO₂	Н	CH ₃	Н	ОН	CH ₂
B67	CN	Н	CH₃	Н	ОН	CH₂
B68	CH₃	CH₃	CH₃	Н	ОН	CH ₂
B69	CH₃CH₂	CH₃	CH₃	Н	ОН	CH ₂
B70	CH₃CH₂CH₂	CH₃	CH ₃	Н	ОН	CH₂
B71	(CH₃)₂CH	· CH ₃	CH₃	Н	ОН	CH ₂
B72	(CH ₃ ) ₃ C	CH ₃	CH₃	Н	ОН	CH₂
B73	CH₃S	CH₃	CH₃	Н	ОН	CH₂
B74	CH₃SO	CH₃	СН₃	Н	ОН	CH ₂
B75	CH ₃ SO ₂	CH₃	СН₃	н.	ОН	CH ₂
B76	Ph	CH₃	CH₃ \	Н	ОН	CH ₂
B77	CH₃O	CH₃	СН₃	Н	ОН	CH ₂
B78	CH ₃ CO ₂	CH₃	CH₃	Н	ОН	CH ₂
B79	CH ₃ CH ₂ CO ₂	CH₃	СН₃	Н	ОН	CH ₂
B80	CH ₂ =CHCH ₂	СН₃	CH ₃	Н	ОН	CH ₂
B81	HCCCH₂	СН₃	CH ₃	Н	ОН	CH ₂
B82	CF ₃	CH₃	СН₃	Н	ОН	CH ₂
B83	(CH ₃ ) ₂ NSO ₂	СН₃	СН₃	Н	ОН	CH ₂
B84	(CH₃)₂N	CH₃	СН₃	Н	ОН	CH ₂
B85	PhO	CH₃	СН₃	Н	ОН	CH ₂
B86	PhS	СН₃	СН₃	Н	ОН	CH ₂
B87	PhSO	CH ₃	CH ₃	Н	ОН	CH₂
B88	PhSO₂	СНз	CH₃	Н	ОН	CH ₂
B89	CN	СН₃	СН₃	Н	ОН	CH ₂
B90	CH ₃	СН₃	CH₃ (	CH ₃	ОН	CH ₂
B91	CH₃CH₂	CH₃	CH₃ (	CH₃	ОН	CH ₂
B92	CH₃CH₂CH₂	СН₃	CH₃ (	CH₃	ОН	CH ₂
B93	(CH₃)₂CH	CH₃	CH₃ C	CH ₃	ОН	CH₂
B94	(CH₃)₃C	СН₃	CH₃ C	CH₃	ОН	CH ₂
B95	CH₃S · -	- CH ₃		Ж₃	ОН	CH₂
B96	CH₃SO	CH₃		H ₃	ОН	CH₂
B97	CH₃SO₂	СН₃		Н₃	ОН	CH₂
B98	Ph	CH ₃	CH₃ C		ОН	CH₂

Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	R ₄₀	W
B99	CH₃O	CH₃	CH₃	CH ₃	ОН	CH ₂
B100	CH ₃ CO ₂	CH ₃	СН₃	CH ₃	ОН	CH ₂
B101	CH₃CH₂CO₂	CH₃	СН3	CH ₃	ОН	CH ₂
B102	CH ₂ =CHCH ₂	CH₃	СН₃	CH ₃	ОН	CH₂ ¹
B103	HCCCH ₂	CH₃	CH ₃	CH ₃	ОН	CH ₂
B104	CF₃	CH₃	СН₃	CH ₃	ОН	CH ₂
B105	$(CH_3)_2NSO_2$	CH₃	СН₃	CH ₃	ОН	CH ₂
B106	(CH ₃ ) ₂ N	CH₃	СН₃	CH ₃	ОН	CH ₂
B107	PhO	CH₃	CH ₃	CH ₃	ОН	CH ₂
B108	PhS	CH₃	CH ₃	CH ₃	ОН	CH ₂
B109	PhSO	CH ₃	CH₃	CH ₃	ОН	CH ₂
B110	PhSO₂	CH ₃	CH ₃	CH₃	ОН	CH ₂
B111	CN	CH₃	CH ₃	СН₃	ОН	CH ₂
B112	CH ₃ CH ₂	CH₃CH₂	Н	Н	ОН	CH ₂
B113	CH ₃ CH ₂ CH ₂	CH ₃ CH ₂	Н	Н	ОН	CH₂
B114	(CH ₃ ) ₂ CH	CH ₃ CH ₂	Н	H	ОН	CH ₂
B115	$(CH_3)_3C$	CH₃CH₂	H	Н	ОН	CH ₂
B116	CH₃S	CH₃CH₂	Н	Н	ОН	CH₂
B117	CH₃SO	CH₃CH₂	Н	Н	ОН	CH ₂
B118	CH₃SO₂	CH₃CH₂	Н	Н	ОН	CH ₂
B119	Ph	CH₃CH₂	Н	Н	ОН	CH ₂
B120	CH₃O	CH₃CH₂	Н	Н	ОН	CH ₂
B121	CH₃CO₂	CH ₃ CH ₂	Н	Н	ОН	CH ₂
B122	CH ₃ CH ₂ CO ₂	CH₃CH₂	Н	Н	ОН	CH ₂
B123	CH ₂ =CHCH ₂	CH ₃ CH ₂	Н.	Н	ОН	CH ₂
B124	HCCCH₂	CH₃CH₂	Н	Н	ОН	CH ₂
B125	CF ₃	CH ₃ CH ₂	Н	Н	ОН	CH ₂
B126	(CH ₃ ) ₂ NSO ₂	CH₃CH₂	Н	Н	ОН	CH ₂
B127	(CH ₃ ) ₂ N	CH ₃ CH ₂	Н	Н	ОН	CH ₂
B128	PhO	CH ₃ CH ₂	Н	Н	ОН	CH ₂
B129	PhS	CH ₃ CH ₂	Н	Н	ОН	CH ₂
B130	PhSO	CH₃CH₂	Н	Н	ОН	CH ₂
B131	PhSO₂	CH₃CH₂	Н	Н	ОН	CH ₂

Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	R ₄₀	W
B132	CN	CH₃CH₂	Н	Н	ОН	CH₂
B133	Н	Н	Н	Н	ОН	CHCH₃
B134	CH₃	Н	Н	Н	ОН	
B135	CH₃CH₂	Н	Н	Н	ОН	CHCH₃
B136	CH ₃ CH ₂ CH ₂	Н	Н	H	ОН	CHCH₃
B137	(CH ₃ ) ₂ CH	Н	Н	Н	ОН	CHCH₃
B138	(CH ₃ ) ₃ C	Н	Н	Н	ОН	
B139	CH₃S	Н	Н	Н	ОН	
B140	CH₃SO	Н	Н	Н	ОН	CHCH₃
B141	CH ₃ SO ₂	Н	H	Н	OH	CHCH₃
B142	Ph	Н	H	Н	ОН	CHCH ₃
B143	CH₃O	Н	Н	Н	ОН	CHCH₃
B144	CH ₃ CO ₂	Н	Н	Н	ОН	CHCH₃
B145	CH ₃ CH ₂ CO ₂	н	Н	Н	ОН	CHCH₃
B146	CH ₂ =CHCH ₂	н	Н	н	ОН	CHCH₃
B147	HCCCH₂	Н	Н	Н	ОН	CHCH₃
B148	CF ₃	н	Н	Н	ОН	СНСН₃
B149	(CH ₃ ) ₂ NSO ₂	Н	Н	Н	ОН	CHCH₃
B150	$(CH_3)_2N$	Н	Н	H	ОН	CHCH₃
B151	PhO	Н	Н	Н	ОН	СНСН₃
B152	PhS	Н	H	Н	ОН	CHCH ₃
B153	PhSO	Н	Н	Н	ОН	CHCH₃
B154	PhSO ₂	Н	Н	Н	ОН	СНСН ₃
B155	CN	Н	Н	Н	ОН	CHCH₃
B156	СН₃	CH₃	Н	н	ОН	CHCH₃
B157	CH₃CH₂	CH ₃	Н	Н	ОН	СНСН₃
B158	CH₃CH₂CH₂	CH₃	Н	Н	ОН	CHCH₃
B159	(CH ₃ ) ₂ CH	CH ₃	Н	н	OH.	CHCH ₃
B160	(CH ₃ ) ₃ C	CH₃	Н	Н	ОН	CHCH ₃
B161	CH₃S	CH ₃	Н	H	ОН	CHCH₃
B162	CH₃SO	CH₃	Н	Н	ОН	CHCH₃
B163	CH₃SO₂	CH₃	Н	Н	ОН	CHCH₃
B164	<b>Ph</b>	CH₃	Н	Н	ОН	CHCH ₃

Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	R ₄₀	W
B165	CH₃O	CH ₃	Н	Н	ОН	CHCH₃
B166	CH ₃ CO ₂	CH₃	Н	Н	ОН	CHCH₃
B167	CH ₃ CH ₂ CO ₂	CH₃	Н	Н	ОН	СНСН₃
B168	CH ₂ =CHCH ₂	CH ₃	Н	Н	ОН	СНСН₃
B169	HCCCH ₂	CH₃	Н	Н	ОН	CHCH ₃
B170	CF ₃	CH ₃	Н	H	ОН	CHCH₃
B171	(CH ₃ ) ₂ NSO ₂	CH₃	Н	Н	ОН	CHCH₃
B172	(CH₃)₂N	CH₃	Н	H	ОН	СНСН₃
B173	PhO	CH ₃	Н	Н	ОН	CHCH₃
B174	PhS	CH₃	Н	Н	ОН	CHCH₃
B175	PhSO	CH ₃	Н	Н	ОН	CHCH₃
B176	PhSO ₂	CH ₃	Н	Н	ОН	CHCH₃
B177	CN	СН₃	Н	Н	ОН	CHCH ₃
B178	CH₃	Н	CH₃	Н	ОН	CHCH₃
B179	CH₃CH₂	Н	CH₃	Н	ОН	CHCH₃
B180	CH ₃ CH ₂ CH ₂	Н	CH₃	Н	ОН	CHCH₃
B181	(CH ₃ ) ₂ CH	H	СН₃	Н	ОН	CHCH₃
B182	(CH ₃ ) ₃ C	Н	CH₃	Н	ОН	CHCH₃
B183	CH₃S	Н	CH₃	Н	ОН	CHCH₃
B184	CH₃SO	Н	СН₃	Н	ОН	CHCH₃
B185	CH ₃ SO ₂	Н	CH ₃	Н	ОН	CHCH₃
B186	Ph	Н	CH₃	Н	ОН	CHCH₃
B187	CH ₃ O	Н	CH₃	Н	ОН	CHCH₃
B188	CH ₃ CO ₂	Н	CH ₃	Н	ОН	CHCH₃
B189	CH ₃ CH ₂ CO ₂	Н	CH ₃	Н	ОН	CHCH ₃
B190	CH ₂ =CHCH ₂	Н	CH ₃	Н	ОН	CHCH ₃
B191	HCCCH₂	Н	CH₃	Н	ОН	CHCH ₃
B192	CF ₃	Н	CH₃	Н	ОН	CHCH₃
B193	(CH₃)₂NSO₂	Н	CH₃	Н	ОН	CHCH₃
B194	(CH₃)₂N	Н	CH₃	H.	ОН	CHCH₃
B195	PhO	Н	CH₃	Н	ОН	CHCH₃
B196	PhS	Н	СН3	Н	ОН	CHCH ₃
B197	PhSO	Н	CH₃	Н	ОН	CHCH ₃

Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	R ₄₀	W
B198	PhSO ₂	Н	CH ₃	Н	ОН	СНСН₃
B199	CN	Н	CH₃	Н	ОН	СНСН₃
B200	CH₃	CH ₃	CH ₃	Н	ОН	СНСН₃
B201	CH₃CH₂	CH₃	СН₃	Н	ОН	СНСН₃
B202	CH₃CH₂CH₂	CH₃	CH₃	Н	ОН	СНСН₃
B203	(CH₃)₂CH	CH₃	CH₃	Н	ОН	CHCH₃
B204	(CH ₃ ) ₃ C	СН₃	CH₃	Н	OH	CHCH₃
B205	CH₃S	СНз	СН₃	Н	ОН	CHCH₃
B206	CH₃SO	CH ₃	CH₃	Н	ОН	CHCH₃
B207	CH₃SO₂	CH ₃	CH₃	H	ОН	CHCH ₃
B208	Ph	CH₃	CH₃	Н	ОН	CHCH₃
B209	CH₃O	CH ₃	CH₃	Н	OH	CHCH₃
B210	CH ₃ CO ₂	CH ₃	CH₃	Н	ОН	CHCH ₃
B211	CH₃CH₂CO₂	CH₃	CH ₃	Н	ОН	CHCH₃
B212	CH ₂ =CHCH ₂	CH ₃	CH ₃	Н	ОН	CHCH₃
B213	HCCCH₂	CH ₃	CH ₃	H	ОН	CHCH₃
B214	CF ₃	CH₃	CH ₃	Н	ОН	CHCH₃
B215	(CH ₃ ) ₂ NSO ₂	CH ₃	CH ₃	Н	ОН	CHCH₃
B216	(CH ₃ )₂N	CH ₃	CH ₃	Н	ОН	CHCH₃
B217	PhO	CH ₃	CH ₃	Н	ОН	CHCH₃
B218	PhS	CH₃	CH ₃	Н	ОН	СӉСН₃
B219	PhSO	CH ₃	CH₃	Н	ОН	CHCH₃
B220	PhSO ₂	CH ₃	CH ₃	Н	ОН	CHCH₃
B221	CN	CH₃	CH ₃	Н	OH	CHCH ₃
B222	CH₃	CH₃	CH₃	CH ₃	ОН	CHCH₃
B223	CH₃CH₂	CH ₃	CH ₃	CH₃	ОН	CHCH ₃
B224	CH₃CH₂CH₂	CH ₃	CH₃	СН₃	ОН	CHCH₃
B225	(CH₃)₂CH	CH ₃	CH₃	CH ₃ .	ОН	СНСН₃
B226	(CH₃)₃C	CH ₃	CH ₃	СН₃	ОН	CHCH₃
B227	CH₃S	CH ₃	CH ₃	CH₃	ОН	CHCH₃
B228	CH₃SO	CH₃	CH ₃	СН₃	ОН	СНСН₃
B229	CH₃SO₂	CH₃	CH₃ (	СН₃	ОН	CHCH₃
B230	:.Ph	CH₃	CH₃ (	СН₃	ОН	CHCH₃

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Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	R ₄₀	W
B231	CH₃O	CH₃	CH₃	CH ₃	ОН	СНСН₃
B232	CH ₃ CO ₂	CH₃	CH₃	CH ₃	ОН	CHCH ₃
B233	CH ₃ CH ₂ CO ₂	CH ₃	CH₃	CH ₃	ОН	CHCH ₃
B234	CH ₂ =CHCH ₂	СН₃	CH₃	CH₃	ОН	СНСН₃҈
B235	HCCCH₂	CH₃	CH₃	CH ₃	ОН	CHCH₃
B236	CF ₃	CH₃	CH ₃	CH ₃	ОН	CHCH₃
B237	(CH ₃ ) ₂ NSO ₂	CH ₃	CH ₃	CH ₃	ОН	CHCH₃
B238	$(CH_3)_2N$	CH₃	CH ₃	CH ₃	ОН	СНСН₃
B239	PhO	СН₃	CH₃	СН3	ОН	CHCH₃
B240	PhS	СН₃	CH₃	CH ₃	ОН	CHCH₃
B241	PhSO	СН₃	CH₃	СН₃	ОН	CHCH₃
B242	PhSO₂	СН₃	CH₃	CH ₃	ОН	CHCH₃
B243	CN ·	CH ₃	CH₃	CH ₃	ОН	CHCH₃
B244	CH₃CH₂	CH ₃ CH ₂	Н	Н	ОН	CHCH₃
B245	CH ₃ CH ₂ CH ₂	CH ₃ CH ₂	Н	Н	ОН	CHCH₃
B246	(CH₃)₂CH	CH₃CH₂	Н	н	ОН	CHCH₃
B247	(CH ₃ ) ₃ C	CH₃CH₂	Н	Н	ОН	CHCH₃
B248	CH₃S	CH₃CH₂	Н	Н	ОН	CHCH₃
B249	CH₃SO	CH₃CH₂	Н	Н	ОН	CHCH₃
B250	CH ₃ SO ₂	CH₃CH₂	Н	Н	ОН	CHCH₃
B251	Ph	CH₃CH₂	Н	Н	ОН	CHCH ₃
B252	CH₃O	CH₃CH₂	Н	Н	ОН	CHCH ₃
B253	CH ₃ CO ₂	CH₃CH₂	Н	Н	ОН	CHCH₃
B254	CH₃CH₂CO₂	CH₃CH₂	Н	Н	ОН	CHCH₃
B255	CH ₂ =CHCH ₂	CH₃CH₂	Н	Н	ОН	CHCH ₃
B256	HCCCH₂	CH₃CH₂	Н	Н	ОН	CHCH ₃
B257	CF ₃	CH₃CH₂	Н	Н	ОН	CHCH ₃
B258	(CH ₃ ) ₂ NSO ₂	CH₃CH₂	Н	H	ОН	CHCH₃
B259	(CH ₃ )₂N	CH₃CH₂	Н	Н	ОН	CHCH₃
B260	PhO	CH ₃ CH ₂	Н	Н	ОН	CHCH ₃
B261	PhS	CH₃CH₂	Н	Н	ОН	CHCH₃
B262	PhSO	CH₃CH₂	Н	Н	ОН	CHCH₃
B263	PhSO ₂	CH₃CH₂	Н	H	ОН	CHCH ₃
				-		

Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	R ₄₀	W
B264	CN	CH ₃ CH ₂	Н	Н	ОН	CHCH ₃
B265	н	Н	Н	Н	ОН	C=O
B266	СН₃	Н	H	Н	ОН	C=O
B267	CH₃CH₂	Н	Н	Н	ОН	C=O
B268	CH₃CH₂CH₂	н	Н	Н	ОН	C=O
B269	(CH ₃ ) ₂ CH	Н	Н	Н	ОН	C=O
B270	(CH ₃ ) ₃ C	Н	Н	Н	OH	C=O
B271	CH₃S	Н	Н	Н	ОН	C=O
B272	CH₃SO	Н	Н	Н	ОН	C=O
B273	CH ₃ SO ₂	Н	Н	Н	ОН	C=O
B274	Ph	Н	Н	Н	ОН	C=O
B275	CH₃O	н	н	Н	ОН	C=O
B276	CH ₃ CO ₂	Н	н	Н	ОН	C=O
B277	CH₃CH₂CO₂	Н	Н	Н	ОН	C=O
B278	CH ₂ =CHCH ₂	н	Н	Н	ОН	C=O
B279	HCCCH₂	, н	Н	Н	ОН	C=O
B280	CF ₃	Н	Н	Н	ОН	C=O
B281	$(CH_3)_2NSO_2$	Н	Н	Н	ОН	C=O
B282	(CH ₃ ) ₂ N	Н	Н	Н	ОН	C=O
B283	PhO	Н	Н	Н	OH	C=O
B284	PhS	Н	Н	Н	ОН	C=O
B285	PhSO	Н	Н	Н	ОН	C=O
B286	PhSO ₂	Н	H.	Н	ОН	C=O
B287	CN	н	Н	Н	ОН	C=O
B288	CH₃	CH ₃	Н	Н	OH	C=O
B289	CH₃CH₂	CH ₃	Н	Н	OH	C=O
B290	CH₃CH₂CH₂	CH ₃	Н	Н	ОН	C=O
B291	(CH₃)₂CH	CH₃	Н	Н	ОН	C=O
B292	$(CH_3)_3C$	CH₃	Н	Н	ОН	C=O
B293	CH₃S	CH₃	Н	Н	ОН	C=O
B294	CH₃SO	CH₃	Н	Н	ОН	C=O
B295	CH₃SO₂	CH₃	Н	Н	ОН	C=O
B296	<b>Ph</b>	СН₃	Н	Н	ОН	C=O

Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	R ₄₀	W
B297	CH₃O	CH ₃	Н	Н	ОН	C=O
B298	CH₃CO₂	CH ₃	Н	H	ОН	C=O
B299	CH ₃ CH ₂ CO ₂	CH₃	H	Н	ОН	C=O
B300	CH ₂ =CHCH ₂	CH ₃	Н	Н	ОН	C=O ~
B301	HCCCH₂	CH ₃	Н	Н	ОН	C=O
B302	CF ₃	CH₃	Н	Н	ОН	C=O
B303	(CH ₃ ) ₂ NSO ₂	CH₃	Н	Н	ОН	C=O
B304	(CH₃)₂N	CH₃	Н	Н	ОН	C=O
B305	PhO	CH₃	Н	Н	ОН	C=O
B306	PhS	CH₃	Н	Н	ОН	C=O
B307	PhSO	CH₃	Н	Н	ОН	C=O
B308	PhSO ₂	CH₃	Н	Н	ОН	C=O
B309	CN	CH₃	Н	H·	ОН	C=O
B310	CH₃	Н	СН₃	Н	ОН	C=O
B311	CH₃CH₂	Н	СН₃	Н	ОН	C=O
B312	CH₃CH₂CH₂	Н	СН₃	Н	ОН	C=O
B313	(CH₃)₂CH	Н	CH₃	Н	ОН	C=O
B314	(ÇH₃)₃C	Н	СН₃	Н	ОН	C=O
B315	CH₃S	Н	CH ₃	Н	ОН	C=O
B316	CH₃SO	. Н	CH ₃	Н	ОН	C=O
B317	CH ₃ SO ₂	Н	CH ₃	Н	ОН	C=O
B318	Ph ·	Н	CH₃	Н	ОН	C=O
B319	CH₃O	Н	CH₃	Н	ОН	C=O
B320	CH ₃ CO ₂	Н	CH ₃	Н	ОН	C=O
B321	CH ₃ CH ₂ CO ₂	Н	CH ₃	H	ОН	C=O
B322	CH ₂ =CHCH ₂	Н	CH ₃	Н	ОН	C=O
B323	HCCCH₂	Н	CH₃	Н	ОН	C=O
B324	CF ₃	Н	CH ₃	Н	ОН	C=O
B325	(CH ₃ ) ₂ NSO ₂	Н	CH₃	Н	ОН	C=O
B326	(CH ₃ ) ₂ N	Н	CH ₃	Н	ОН	C=O
B327	PhO	Н	CH ₃	Н	ОН	C=O
B328	PhS	н	CH ₃	Н	ОН	C=O
B329	PhSO	Н	CH₃	Н	ОН	C=O

Radical	R ₄₄	D	D	D	D	\A/
B330	PhSO ₂	R ₃₇	R ₃₈	R ₃₉	R ₄₀	W
B331	PNSO ₂	Н	CH₃	Н	OH	C=O
		Н	CH₃	H	OH	C=O
B332	CH₃	CH₃	CH₃	H 	OH	.C=O
B333	CH₃CH₂	CH₃	CH₃	Н	OH	C=0
B334	CH₃CH₂CH₂	CH₃	CH₃	Н	ОН	C=O
B335	(CH₃)₂CH	CH₃	CH₃	Н	ОН	C=O
B336	(CH₃)₃C	CH₃	CH₃	Н	ОН	C=O
B337	CH₃S	CH₃	CH ₃	Н	OH	C=O
B338	CH₃SO	CH₃	CH₃	Н	ОН	C=O
B339	CH₃SO₂	CH₃	CH₃	Н	OH	C=O
B340	Ph	CH₃	CH₃	H·	ОН	C=O
B341	CH₃O	CH₃	CH₃	Н	OH	C=O
B342	CH₃CO₂	CH₃	CH ₃	Н	OH	C=O
B343	CH ₃ CH ₂ CO ₂	CH₃	CH₃	Н	OH	C=O
B344	CH ₂ =CHCH ₂	CH₃	СН₃	Н	OH	C=0
B345	HCCCH₂	CH₃	CH₃	Н	ОН	C=O
B346	CF ₃	CH ₃	CH ₃	Н	ОН	C=O
B347	$(CH_3)_2NSO_2$	CH₃	CH ₃	Н	ОН	C=O
B348	$(CH_3)_2N$	CH ₃	CH ₃	Н	ОН	C=O
B349	PhO	CH₃	CH ₃	Н	ОН	C=O
B350	PhS	CH ₃	СН3	Н	ОН	C=O
B351	PhSO	CH ₃	CH ₃	Н	ОН	C=O
B352	PhSO ₂	CH ₃	СН₃	Н	ОН	C=O
B353	CN	CH ₃	CH ₃	Н	ОН	C=O
B354	CH₃	CH₃	СН₃	CH₃	ОН	C=O
B355	CH₃CH₂	CH₃	СН3	СН₃	ОН	- C=O
B356	CH₃CH₂CH₂	CH₃	CH ₃	СН₃	ОН	C=O
B357	(CH₃)₂CH	CH ₃	CH ₃	СН₃	ОН	C=O
B358	(CH₃)₃C	CH₃	CH₃	СН₃	ОН	C=0
B359	CH₃S	CH ₃	CH ₃	СН₃	ОН	C=O
B360	CH₃SO	СН₃		СН₃	ОН	C=O
B361	CH₃SO₂	CH₃		CH₃	ОН	C=O
B362	Ph	CH₃		CH₃	ОН	C=O

Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	R ₄₀	W
B363	CH₃O	CH₃	CH₃	CH ₃	ОН	C=O
B364	CH ₃ CO ₂	CH₃	CH₃	CH ₃	ОН	C≕O
B365	CH ₃ CH ₂ CO ₂	CH₃	CH₃	CH ₃	ОН	C=O
B366	CH ₂ =CHCH ₂	CH ₃	СН₃	CH ₃	ОН	C=O ~
B367	HCCCH₂	CH₃	CH ₃	CH₃	ОН	C=O
B368	CF ₃	CH ₃	CH₃	CH ₃	ОН	C=O
B369	(CH ₃ ) ₂ NSO ₂	CH₃	CH ₃	CH ₃	ОН	C=O
B370	(CH ₃ ) ₂ N	CH₃	CH ₃	CH ₃	ОН	C=O
B371	PhO	СНз	CH ₃	CH ₃	ОН	C≕O
B372	PhS	СН₃	CH₃	CH ₃	ОН	C≂O
B373	PhSO	CH₃	CH₃	CH ₃	ОН	C=O
B374	PhSO ₂	CH ₃	CH ₃	CH ₃	ОН	C=O
B375	CN	CH ₃	CH ₃	CH ₃	ОН	C=O
B376	CH ₃ CH ₂	CH ₃ CH ₂	Н	H	ОН	C=O
B377	CH ₃ CH ₂ CH ₂	CH₃CH₂	Н	H	ОН	C=O
B378	(CH₃)₂CH	CH ₃ CH ₂	Н	Н	ОН	C≃O
B379	(CH ₃ ) ₃ C	CH₃CH₂	Н	Н	ОН	C=O
B380	CH₃S	CH₃CH₂	Н	Н	ОН	C=O
B381	CH₃SO	CH ₃ CH ₂	Н	Н	ОН	C=O
B382	CH₃SO₂	CH₃CH₂	H	Н	ОН	C=O
B383	Ph	CH ₃ CH ₂	Н	Н	ОН	C=O
B384	CH₃O	CH₃CH₂	Н	Н	ОН	C=O ·
B385	CH ₃ CO ₂	CH ₃ CH ₂	Н	Н	ОН	C=O
B386	CH₃CH₂CO₂	CH ₃ CH ₂	Н	H	ОН	C=O
B387	CH ₂ =CHCH ₂	CH₃CH₂	Н	Н	ОН	C=O
B388	HCCCH₂	CH ₃ CH ₂	Н	Н	ОН	C=O
B389	CF ₃	CH₃CH₂	Н	Н	ОН	C=O
B390	(CH ₃ ) ₂ NSO ₂	CH₃CH₂	Н	Н	ОН	C≈O
B391	$(CH_3)_2N$	CH₃CH₂	Н	Н	ОН	C=O
B392	PhO	CH ₃ CH ₂	Н	Н	ОН	C=O
B393	PhS	CH₃CH₂	Н	Н	ОН	C=O
B394	PhSO	CH₃CH₂	Н	Н	ОН	C=O
B395	PhSO ₂	CH₃CH₂	Н	Н	ОН	C=O

Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	R ₄₀	w
B396	CN	CH₃CH₂	Н	Н	ОН	C=O
B397	Н	Н	Н	Н	ОН	N-CH₃
B398	CH ₃	H	Н	Н	ОН	N-CH₃
B399	CH₃CH₂	Н	Н	Н	ОН	N-CH₃
B400	CH ₃ CH ₂ CH ₂	Н	Н	Н	ОН	N-CH₃
B401	(CH ₃ )₂CH	Н	Н	Н	ОН	N-CH₃
B402	(CH ₃ ) ₃ C	н	Н	Н	ОН	N-CH₃
B403	CH₃S	Н	Н	Н	ОН	N-CH₃
B404	CH₃SO	Н	Н	Н	ОН	N-CH₃
B405	CH ₃ SO ₂	Н	H ·	Н	ОН	N-CH₃
B406	Ph	Н	Н	Н	ОН	N-CH₃
B407	CH₃O	Н	Н	Н	ОН	N-CH₃
B408	CH ₃ CO ₂	Н	Н	H	OH	N-CH₃
B409	CH ₃ CH ₂ CO ₂	Н	Н	Н	ОН	N-CH₃
B410	CH ₂ =CHCH ₂	Н	Н	Н	ОН	N-CH₃
B411	HCCCH ₂	н	Н	Н	ОН	N-CH₃
B412	CF ₃	Н	Н	Н	ОН	N-CH₃
B413	(CH ₃ ) ₂ NSO ₂	Н	Н	Н	ОН	N-CH₃
B414	(CH₃)₂N	Н	Н	Н	ОН	N-CH₃
B415	PhO	Н	Н	Н	ОН	N-CH₃
B416	PhS	Н	Н	Н	ОН	N-CH₃
B417	PhSO	Н	Н	Н	ОН	N-CH ₃
B418	PhSO ₂	Н	Н	Н	ОН	N-CH ₃
B419	CN	Н	Н	Н	ОН	N-CH ₃
B420	CH₃	CH₃	Н	Н	ОН	N-CH₃
B421	CH₃CH₂	` CH₃	Н	Н	ОН	N-CH₃
B422	CH ₃ CH ₂ CH ₂	CH ₃	Н	Н	ОН	N-CH₃
B423	(CH₃)₂CH	CH ₃	Н	Н	ОН	N-CH₃
B424	(CH₃)₃C	CH ₃	Н	Н	ОН	N-CH₃
B425	CH₃S	CH ₃	H	Ή	OH	N-CH₃
B426	CH₃SO	CH₃	Н	Н	ОН	N-CH₃
B427	CH₃SO₂	CH₃	Н	Н	ОН	N-CH₃
B428	<b>.</b> Ph	CH₃	Н	Н	ОН	N-CH₃

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Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	R ₄₀	W
B429	CH₃O	CH₃	Н	Н	ОН	N-CH₃
B430	CH₃CO ₂	CH₃	Н	Н	ОН	N-CH₃
B431	CH₃CH₂CO₂	CH₃	Н	Н	ОН	N-CH ₃
B432	CH ₂ =CHCH ₂	CH₃	Н	Н	ОН	N-CH₃
B433	HCCCH₂	CH ₃	Н	Н	ОН	N-CH ₃
B434	CF ₃	CH ₃	Н	Н	ОН	N-CH ₃
B435	$(CH_3)_2NSO_2$	CH ₃	H	Н	ОН	N-CH ₃
B436	(CH ₃ ) ₂ N	CH₃	Н	Н	ОН	N-CH ₃
B437	PhO	CH ₃	Н	Н	ОН	N-CH₃
B438	PhS	CH₃	Н	Н	ОН	N-CH₃
B439	PhSO	CH₃	Н	Н	ОН	N-CH₃
B440	PhSO ₂	СН3	Н	Н	ОН	N-CH₃
B441	CN	- CH₃	Н	Н	ОН	N-CH₃
B442	CH ₃	Н	СН₃	Н	ОН	N-CH₃
B443	CH₃CH₂	Н	СН₃	Н	ОН	N-CH₃
B444	CH ₃ CH ₂ CH ₂	Н	СН₃	Н	ОН	N-CH₃
B445	(CH ₃ ) ₂ CH	Н	СН₃	Н	ОН	N-CH₃
B446	(CH ₃ ) ₃ C	H	CH₃	Н	OH	N-CH₃
B447	CH₃S	Н	CH ₃	Н	ОН	N-CH₃
B448	CH₃SO	Н	CH₃	Н	ОН	N-CH ₃
B449	CH₃SO₂	Н	CH₃	Н	ОН	N-CH ₃
B450	Ph	Н	CH ₃	Н	ОН	N-CH ₃
B451	CH₃O	Н	CH ₃	Н	ОН	N-CH ₃
B452	CH₃CO₂	Н	CH ₃	Н	ОН	N-CH ₃
B453	CH₃CH₂CO₂	Н	CH ₃	Н	ОН	N-CH ₃
B454	CH ₂ =CHCH ₂	Н	CH ₃	Н	ОН	N-CH₃
B455	HCCCH₂	Н	CH₃	Н	ОН	N-CH ₃
B456	CF ₃	Н	CH₃	Н	ОН	N-CH ₃
B457	(CH ₃ ) ₂ NSO ₂	Н	СН₃	Н	ОН	N-CH₃
B458	$(CH_3)_2N$	Н	CH₃	Н	ОН	N-CH₃
B459	PhO	Н	CH ₃	Н	ОН	N-CH₃
B460	PhS	Н	CH ₃	Н	ОН	N-CH₃
B461	PhSO	Н	CH ₃	Н	ОН	N-CH ₃

Radical	R ₄₄	R ₃₇	R ₃₈ R ₃	9 R ₄₀	w
B462	PhSO ₂	Н	CH₃ H		N-CH₃
B463	CN	Н	CH₃ H	ОН	N-CH₃
B464	CH₃	CH₃	CH₃ H	ОН	N-CH₃
B465	CH ₃ CH ₂	CH₃	СН₃ Н	ОН	N-CH₃
B466	CH₃CH₂CH₂	CH ₃	CH₃ H	ОН	N-CH₃
B467	(CH ₃ ) ₂ CH	СН₃	СН₃ Н	ОН	N-CH₃
B468	(CH₃)₃C	CH₃	СН₃ Н	ОН	N-CH₃
B469	CH₃S	СН₃	СН₃ Н	ОН	N-CH₃
B470	CH ₃ SO	СН₃	СН₃ Н	ОН	N-CH₃
B471	CH ₃ SO ₂	СН₃	CH₃ H	OH	N-CH ₃
B472	Ph	СНз	СН₃ Н	ОН	N-CH₃
B473	CH₃O	СНз	СН₃ Н	ОН	N-CH₃
B474	CH ₃ CO ₂	СН₃	СН₃ Н	ОН	N-CH₃
B475	CH₃CH₂CO₂	СН₃	СН₃ Н	ОН	N-CH₃
B476	CH ₂ =CHCH ₂	СН₃	СН₃ Н	ОН	N-CH₃
B477	HCCCH₂	СН₃	СН ₃ Н	ОН	N-CH₃
B478	CF₃	CH₃	СН₃ Н	ОН	N-CH ₃
B479	$(CH_3)_2NSO_2$	CH ₃	CH₃ H	ОН	N-CH₃
B480	(CH ₃ ) ₂ N	CH ₃	CH₃ H	ОН	N-CH ₃
B481	PhO	CH ₃	СН₃ Н	ОН	N-CH₃
B482	PhS	CH ₃	СН₃ Н	ОН	N-CH₃
B483	PhSO	CH ₃	CH₃ H	ОН	N-CH₃
B484	PhSO ₂	CH ₃	СН₃ Н	ОН	N-CH₃
B485	CN	CH₃	CH ₃ H	ОН	N-CH₃
B486	CH₃	CH₃	CH ₃ CH ₃	ОН	N-CH₃
B487	CH₃CH₂	CH ₃	CH ₃ CH ₃	ОН	N-CH₃
B488	CH₃CH₂CH₂	CH ₃	CH₃ CH₃	ОН	N-CH₃
B489	(CH₃)₂CH	CH ₃	CH₃ CH₃	ОН	N-CH₃
B490	(CH₃)₃C	CH ₃	CH₃ CH₃	ОН	N-CH ₃
B491	CH₃S	CH ₃	CH ₃ CH ₃	OH -	N-CH ₃
B492	CH₃SO	CH ₃	CH ₃ CH ₃	ОН	N-CH₃
B493	CH₃SO₂	CH ₃	CH ₃ CH ₃	ОН	N-CH₃
B494	Ph	CH ₃	CH ₃ CH ₃	ОН	N-CH₃

Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	R ₄₀	W
B495	CH₃O	CH₃	CH ₃	СН3	ОН	N-CH ₃
B496	CH₃CO₂	CH₃	CH₃	CH₃	ОН	N-CH ₃
B497	CH₃CH₂CO₂	СН₃	СН₃	СН3	ОН	N-CH ₃
B498	CH ₂ =CHCH ₂	СН₃	CH₃	СНз	ОН	N-CH₃
B499	HCCCH₂	CH ₃	СН₃	CH ₃	ОН	N-CH₃
B500	CF ₃	СН₃	CH ₃	СН3	ОН	N-CH₃
B501	(CH ₃ ) ₂ NSO ₂	СН₃	CH ₃	СН3	ОН	N-CH₃
B502	(CH₃)₂N	СН₃	CH₃	СН₃	ОН	N-CH ₃
B503	PhO	CH₃	CH ₃	СН3	ОН	N-CH₃
B504	PhS	СН₃	СН₃	СНз	ОН	N-CH₃
B505	PhSO	CH₃	CH₃	СН₃	ОН	N-CH₃
B506	PhSO ₂	СН₃	CH ₃	СН₃	ОН	N-CH₃
B507	CN	СН₃	CH ₃	CH ₃	ОН	N-CH₃
B508	CH₃CH₂	CH₃CH₂	Н	н	ОН	N-CH₃
B509	CH ₃ CH ₂ CH ₂	CH ₃ CH ₂	Н	Н	ОН	N-CH ₃
B510	(CH₃)₂CH	CH₃CH₂	Н	Н	ОН	N-CH₃
B511	(CH ₃ ) ₃ C	CH₃CH₂	Н	Н	ОН	N-CH₃
B512	CH₃S	CH₃CH₂	Н	Н	ОН	N-CH₃
B513	CH₃SO	CH ₃ CH ₂	Н	Н	ОН	N-CH₃
B514	CH ₃ SO ₂	CH₃CH₂	Н	Н	ОН	N-CH₃
B515	Ph	CH₃CH₂	Н	Н	ОН	N-CH₃
B516	CH₃O	CH₃CH₂	Н	·H	ОН	N-CH ₃
B517	CH ₃ CO ₂	CH₃CH₂	Н	Н	ОН	N-CH₃
B518	CH ₃ CH ₂ CO ₂	CH₃CH₂	Н	Н	ОН	N-CH ₃
B519	CH ₂ =CHCH ₂	CH₃CH₂	Н	Н	ОН	N-CH₃
B520	HCCCH₂	CH₃CH₂	Н	Н	ОН	N-CH ₃
B521	CF ₃	CH₃CH₂	Н	Н	ОН	N-CH₃
B522	(CH ₃ ) ₂ NSO ₂	CH ₃ CH ₂	Н	Н	ОН	N-CH ₃
B523	$(CH_3)_2N$	CH ₃ CH ₂	Н	Н	ОН	N-CH ₃
B524	PhO	CH ₃ CH ₂	Н	Н	ОН	N-CH₃
B525	PhS	CH₃CH₂	Н	Н	ОН	N-CH₃
B526	PhSO	CH₃CH₂	Н	Н	ОН	N-CH₃
B527	PhSO ₂	CH ₃ CH ₂	Н	Н	ОН	N-CH₃

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Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	R ₄₀	w
B528	CN	CH₃CH₂	Н	Н	ОН	N-CH₃
B529	Н	Н	Н	Н	ОН	. О
B530	CH₃	Н	Н	Н	ОН	0
B531	CH ₃ CH ₂	Н	Н	Н	ОН	0
B532	CH ₃ CH ₂ CH ₂	н	Н	Н	ОН	0
B533	(CH₃)₂CH	Н	Н	Н	ОН	0
B534	(CH ₃ ) ₃ C	Н	Н	Н	ОН	O
B535	CH₃S	н	Н	Н	ОН	0
B536	CH₃SO	н	Н	Н	ОН	0
B537	CH ₃ SO₂	н. н.	H	Н	ОН	0
B538	Ph	Н	Н	Н	ОН	0
B539	CH₃O	Н	Н	Н	ОН	O
B540	CH ₃ CO ₂	Н	Н	Н	ОН	0
B541	CH ₃ CH ₂ CO ₂	Н	Н	Н	ОН	0
B542	CH ₂ =CHCH ₂	Н	Н	Н	ОН	0
B543	HCCCH₂	Н	Н	Н	ОН	. 0
B544	CF ₃	Н	Н	Н	ОН	0
B545	(CH ₃ ) ₂ NSO ₂	Н	Н	Н	ОН	0
B546	(CH₃)₂N	Н	Н	Н	ОН	0
B547	PhO	Н	Н	Н	ОН	0
B548	PhS	Н	Н	Н	ОН	0
B549	PhSO	Н	Н	Н	ОН	0
B550	PhSO ₂	Н	Н	Н	ОН	0
B551	CN	н	Н	Н	ОН	. 0
B552	СН₃	CH ₃	Н	Н	ОН	0
B553	CH₃CH₂	CH ₃	Н	Н	ОН	0
B554	CH₃CH₂CH₂	CH₃	Н	Н	ОН	0
B555	(CH ₃ ) ₂ CH	CH ₃	Н	Н	ОН	0
B556	(CH ₃ ) ₃ C	CH₃	Н	Н	ОН	Ο
B557	CH₃S	CH₃	Н	Н	ОН	0
B558	CH₃SO	CH₃	H	Н	ОН	0
B559	CH₃SO₂	CH₃	Н	Н	ОН	0
B560	Ph	CH ₃	Н	Н	ОН	0

Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	R ₄₀	W
B561	CH₃O	CH ₃	Н	Н	ОН	0
B562	CH₃CO₂	CH ₃	Н	Н	ОН	0
B563	CH ₃ CH ₂ CO ₂	CH₃	Н	Н	ОН	0
B564	CH ₂ =CHCH ₂	CH₃	Н	Н	ОН	0 -
B565	HCCCH₂	CH₃	Н	Н	ОН	0
B566	CF ₃	CH ₃	Н	Н	ОН	0
B567	(CH ₃ ) ₂ NSO ₂	CH ₃	Н	Н	ОН	0
B568	(CH ₃ ) ₂ N	CH ₃	Н	Н	ОН	0
B569	PhO	CH₃	Н	Н	ОН	0
B570	PhS	CH ₃	Н	Н	ОН	0
B571	PhSO	CH ₃	Н	Н	ОН	0
B572	PhSO ₂	CH ₃	Н	Н	ОН	0
B573	CN	CH ₃	Н	Н	ОН	0
B574	CH₃	Н	CH₃	Н	ОН	0
B575	CH₃CH₂	н	CH₃	Н	ОН	0
B576	CH₃CH₂CH₂	Н	CH ₃	Н	ОН	0
B577	(CH₃)₂CH	Н	СН₃	Н	ОН	0
B578	(CH ₃ ) ₃ C	H	CH₃	Ή.	ОН	0
B579	CH₃S	Н	CH₃	Н	ОН	0
B580	CH₃SO	Н	CH₃	Н	ОН	0
B581	CH₃SO₂	Н	CH₃	Н	ОН	0
B582	Ph	Н	CH ₃	Н	ОН	0
B583	CH₃O	Н	СН₃	Н	ОН	0
B584	CH ₃ CO ₂	Н	CH₃	Н	ОН	0
B585	CH₃CH₂CO₂	Н	CH ₃	Н	ОН	0
B586	CH ₂ =CHCH ₂	Н	СН₃	Н	ОН	0
B587	HCCCH₂	Н	CH ₃	Н	ОН	0
B588	CF ₃	н	CH₃	Н	ОН	0
B589	(CH ₃ ) ₂ NSO ₂	H	CH ₃	Н	ОН	0
B590	$(CH_3)_2N$	Н	CH ₃	Н	ОН	0
B591	PhO	Н	CH ₃	Н	ОН	О
B592	PhS	Н	CH ₃	Н	ОН	0
B593	PhSO	Н	CH₃	Н	ОН	0

Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	R ₄₀	W
B594	PhSO ₂	Н	CH₃	Н	ОН	0
B595	CN	Н	CH₃	Н	ОН	O
B596	CH ₃	CH ₃	CH ₃	Н	ОН	0
B597	CH ₃ CH ₂	CH ₃	CH₃	Н	ОН	0
B598	CH ₃ CH ₂ CH ₂	CH₃	CH ₃	Ή	ОН	0
B599	(CH ₃ ) ₂ CH	CH₃	CH ₃	Н	ОН	0
B600	(CH ₃ ) ₃ C	СН₃	CH ₃	Н	ОН	0
B601	CH₃S	СН₃	CH₃	Н	ОН	0
B602	CH₃SO	СН₃	СН₃	Н	ОН	0
B603	CH ₃ SO ₂	CH₃	СН₃	Н	ОН	0
B604	Ph	CH₃	CH ₃	Н	ОН	. 0
B605	CH₃O	CH₃	CH ₃	Н	ОН	0
B606	CH ₃ CO ₂	CH ₃	СН₃	Н	ОН	0
B607	CH₃CH₂CO₂	CH ₃	СН₃	Н	ОН	0
B608	CH ₂ =CHCH ₂	СН₃	СНз	Н	ОН	0
B609	HCCCH ₂	CH ₃	СН₃	Н	ОН	0
B610	CF ₃	СН₃	CH₃	Н	ОН	0
B611	$(CH_3)_2NSO_2$	. CH ₃	CH ₃	Η.	ОН	. 0
B612	(CH ₃ ) ₂ N	CH ₃	СН₃	H	ОН	0
B613	PhO	CH ₃	СН₃	Н	ОН	0
B614	PhS	CH ₃	CH ₃	Н	ОН	0
B615	PhSO	CH₃	CH ₃	Н	ОН	Ο.
B616	PhSO ₂	CH ₃	CH ₃	Н	ОН	. О
B617	CN	CH₃	CH ₃	Н	ОН	Ο
B618	CH₃	CH₃	CH ₃	CH₃	ОН	0
B619	CH₃CH₂	CH ₃	CH ₃ (	CH₃	ОН	Ο.
B620	CH₃CH₂CH₂	СН₃	CH₃ (	CH₃	ОН	、 <b>O</b>
B621	(CH ₃ ) ₂ CH	CH ₃	CH₃ (	CH₃	ОН	0
B622	(CH ₃ ) ₃ C	CH₃	CH₃ (	CH₃	ОН	0
B623	CH₃S	CH₃	CH ₃ (	CH ₃	ОН	0 -
B624	CH₃SO	CH₃	CH₃ (	CH₃	ОН	0
B625	CH ₃ SO₂	СН₃	CH ₃ (	CH₃	ОН	0
B626	Ph	CH₃	CH₃ (	CH₃	ОН	Ο

Radical	$R_{44}$	R ₃₇	R ₃₈	R ₃₉	R ₄₀	W
B627	CH₃O	CH₃	СН₃	CH ₃	ОН	0
B628	CH ₃ CO ₂	CH₃	СН₃	CH ₃	ОН	0
B629	CH ₃ CH ₂ CO ₂	CH ₃ .	СН3	СН₃	ОН	0
B630	CH ₂ =CHCH ₂	CH ₃	СНз	CH ₃	ОН	0
B631	HCCCH₂	CH ₃	CH ₃	CH₃	ОН	0
B632	CF ₃	CH ₃	СН₃	CH₃	ОН	0
B633	(CH ₃ ) ₂ NSO ₂	CH₃	СН3	СН₃	ОН	0
B634	(CH ₃ ) ₂ N	CH₃	СН₃	CH ₃	ОН	0
B635	PhO	CH ₃	CH ₃	CH ₃	ОН	0
B636	PhS	CH₃	CH ₃	CH ₃	ОН	0
B637	PhSO	CH₃	CH ₃	CH ₃	ОН	0
B638	PhSO ₂	CH₃	CH ₃	CH ₃	ОН	0
B639 ·	CN	CH₃	CH ₃	CH ₃	ОН	0
B640	CH₃CH₂	CH₃CH₂	Н	Н	ОН	0
B641	CH ₃ CH ₂ CH ₂	CH₃CH₂	Н	Н	ОН	О
B642	(CH ₃ ) ₂ CH	CH₃CH₂	Н	Н	ОН	О
B643	(CH ₃ ) ₃ C	CH₃CH₂	Н	Н	ОН	0
B644	CH₃S	CH₃CH₂	Н	Н	ОН	0
B645	CH₃SO	CH₃CH₂	Н	Н	ОН	0
B646	CH₃SO₂	CH₃CH₂	Н	H	ОН	0
B647	Ph	CH ₃ CH ₂	Н	Н	ОН	0
B648	CH₃O	CH₃CH₂	Н	Н	ОН	0
B649	CH ₃ CO ₂	CH₃CH₂	Н	Н	ОН	0
B650	CH₃CH₂CO₂	CH₃CH₂	Н	Н	ОН	0
B651	CH ₂ =CHCH ₂	CH₃CH₂	Н	Н	ОН	O
B652	HCCCH₂	CH₃CH₂	Н	Н	ОН	0
B653	CF₃	CH₃CH₂	Н	Н	OH	0
B654	(CH ₃ ) ₂ NSO ₂	CH₃CH₂	Н	Н	ОН	0
B655	(CH₃)₂N	CH ₃ CH ₂	Н	Н	ОН	0
B656	PhO	CH₃CH₂	Н	Н	ОН	О
B657	PhS	CH ₃ CH ₂	Н	Н	ОН	0
B658	PhSO	CH₃CH₂	Н	Н	ОН	Ο
B659	PhSO₂	CH ₃ CH ₂	Н	Н	ОН	0

Radical	$R_{44}$	R ₃₇	R ₃₈	R ₃₉	R ₄₀	W
B660	CN	CH₃CH₂	Н	Н	ОН	0
B661	н	Н	Н	Н	ОН	S
B662	CH₃	Н	Н	Н	ОН	S
B663	CH₃CH₂	Н	Н	Н	ОН	S
B664	CH₃CH₂CH₂	Н	Н	Н	ОН	S
B665	(CH ₃ ) ₂ CH	Н	Н	Н	ОН	S
B666	(CH ₃ ) ₃ C	Н	Н	Н	ОН	S
B667	CH₃S	Н	Н	Н	ОН	S
B668	CH₃SO	Н	H·	Н	ОН	s
B669	CH ₃ SO ₂	Н	Н	٠н	ОН	S
B670	Ph	Н	Н	Н	ОН	S.
B671	CH ₃ O	Н	Н	Н	ОН	s
B672	CH ₃ CO ₂	Н	Н	Н	ОН	s
B673	CH ₃ CH ₂ CO ₂	Н	Н	Н	OH	S
B674	CH ₂ =CHCH ₂	Н	Н	Н	ОН	S
B675	HCCCH₂	Н	Н	H	ОН	S
B676	CF ₃	Н	Н	Н	ОН	S
B677	(CH ₃ ) ₂ NSO ₂	Н	Н	Н	ОН	S
B678	(CH ₃ )₂N	Н	H	Н	ОН	S
B679	PhO	Н	Н	Н	ОН	s
B680	PhS	Н	Ĥ	Н	ОН	s
B681	PhSO	Н	Н	Н	ОН	S
B682	PhSO ₂	Н	Н	Н	ОН	s
B683	CN	H	Н	Н	ОН	S
B684	CH₃	CH ₃	Н	Н	ОН	S
B685	CH₃CH₂	CH ₃	Н	Н	ОН	S
B686	CH₃CH₂CH₂	CH ₃	Н	Н	ОН	S
B687	(CH ₃ ) ₂ CH	CH₃	Н	Н	ОН	s
B688	(CH ₃ ) ₃ C	CH₃	Н	Н	ОН	s
B689	CH₃S	CH ₃	Н	Ĥ	ОН	S
B690	CH₃SO	CH₃	Н	Н	ОН	s
B691	CH ₃ SO ₂	CH ₃	Н	Н	ОН	s
B692	Ph	CH₃	Н	Н	ОН	s

Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	R ₄₀	W
B693	CH₃O	CH₃	Н	H	ОН	s
B694	CH ₃ CO ₂	CH₃	Н	Н	ОН	S
B695	CH ₃ CH ₂ CO ₂	CH₃	Н	Н	ОН	S
B696	CH ₂ =CHCH ₂	СН₃	Н	Н	ОН	s
B697	HCCCH₂	CH₃	Н	Н	ОН	s
B698	CF ₃	CH₃	Н	Н	ОН	S
B699	(CH ₃ ) ₂ NSO ₂	CH₃	Н	Н	ОН	s
B700	$(CH_3)_2N$	CH₃	Н	Н	ОН	s
B701	PhO	СН₃	Н	Н	ОН	s
B702	PhS	СН₃	Н	Н	ОН	s
B703	PhSO	CH₃	Н	Н	ОН	s
B704	PhSO ₂	CH ₃	Н	Н	ОН	s
B705	CN .	CH ₃	Н	Н	ОН	· s
B706	CH ₃	Н	CH ₃	Н	ОН	s
B707	CH₃CH₂	Н	CH₃	Н	ОН	s
B708	CH₃CH₂CH₂	н	CH₃	Н	ОН	s
B709	(CH₃)₂CH	Н	CH ₃	Н	ОН	s
B710	(CH ₃ ) ₃ C	Н	CH₃	Н	ОН	s
B711	CH₃S	Н	CH ₃	Н	ОН	s
B712	CH₃SO	Н	CH₃	Н	ОН	S
B713	CH₃SO₂	Н	CH ₃	Н	ОН	s
B714	Ph	Н	CH₃	Н	ОН	s
B715	CH₃O	Н	CH₃	Н	ОН	s
B716	CH₃CO₂	Н	CH₃	Н	ОН	S
B717	CH ₃ CH ₂ CO ₂	Н	CH₃	H	ОН	S
B718	CH ₂ =CHCH ₂	Н	CH₃	Н	ОН	S
B719	HCCCH₂	Н	CH₃	Н	ОН	S
B720	CF ₃	Н	CH₃	Н	ОН	s
B721	(CH ₃ ) ₂ NSO ₂	Н	CH₃	Н	ОН	S
B722	(CH ₃ ) ₂ N	Н	СН₃	Н	ОН	s
B723	PhO	Н	CH₃	Н	ОН	s
B724	PhS	н	CH₃	Н	ОН	s
B725	PhSO	Н	СН₃	Н	ОН	s

Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	R ₄₀	w
B726	PhSO₂	H	CH₃	Н	ОН	s
B727	CN	Н	СН₃	Н	ОН	s
B728	CH₃	CH₃	CH₃	Н	ОН	s
B729	CH ₃ CH ₂	СН₃	CH ₃	Н	ОН	S
B730	CH₃CH₂CH₂	CH₃	CH₃	Н	ОН	S
B731	(CH₃)₂CH	СН₃	CH₃	Н	ОН	S
B732	(CH₃)₃C	СН₃	CH₃ .	Н	ОН	S
B733	CH₃S	СН₃	СН₃	Н	ОН	S
B734	CH₃SO	CH₃	СН₃	Н	ОН	S
B735	CH₃SO₂	CH₃	СН₃	Н	ОН	s
B736	Ph	СН₃	СН₃	Н	ОН	s
B737	CH₃O	СН₃	СН₃	Н	ОН	s
B738	CH₃CO₂	СН₃	СН₃	H	ОН	s
B739	CH₃CH₂CO₂	СН₃	СН₃	Н	ОН	S
B740	CH ₂ =CHCH ₂	СН₃	СН₃	Н	ОН	· S
B741	HCCCH₂	СН₃	CH₃	Н	ОН	s
B742	CF ₃	СН₃	СН₃	Н	ОН	S
B743	(CH ₃ ) ₂ NSO ₂	CH ₃	СН₃	Н	ОН	S
B744	$(CH_3)_2N$	СН₃	СН₃	Н	ОН	S
B745	PhO	CH ₃	СН₃	Н	ОН	s
B746	PhS	CH₃	СН₃	Н	ОН	s
B747	PhSO	СН₃	СН₃	Н	ОН	s
B748	PhSO ₂	CH₃	CH ₃	Н	ОН	s
B749	CN	CH ₃	CH₃	Н	ОН	S
B750	CH ₃	СНз	CH₃ (	CH₃	ОН	S
B751	CH ₃ CH ₂	CH ₃	CH₃ (	СН₃	ОН	S
B752	CH ₃ CH ₂ CH ₂	CH₃	CH₃ (	CH₃	ОН	S
B753	(CH₃)₂CH	CH₃	CH₃ (	CH₃	ОН	S
B754	(CH₃)₃C	CH₃	CH ₃ . (	CH ₃	ОН	s
B755	CH₃S	CH₃	CH₃ (	CH ₃	OH	s
B756	CH₃SO	CH₃	CH₃ (	CH₃	ОН	s
B757	CH₃SO₂	СН₃	CH₃ (	CH₃	ОН	s
B758	Ph	СН₃	CH₃ C	Н₃	ОН	s

Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	R ₄₀	W
B759	CH₃O	CH₃	CH₃	CH ₃	ОН	S
B760	CH ₃ CO ₂	CH₃	CH ₃	СН₃	ОН	S
B761	CH ₃ CH ₂ CO ₂	CH₃	СН₃	CH₃	ОН	S
B762	CH ₂ =CHCH ₂	CH ₃	СН₃	CH ₃	ОН	S =
B763	HCCCH₂	CH ₃	СН₃	CH ₃	ОН	S
B764	CF ₃	CH₃	CH ₃	CH ₃	ÓН	S
B765	$(CH_3)_2NSO_2$	CH₃	CH ₃	CH ₃	ОН	s
B766	(CH ₃ ) ₂ N	СН₃	CH ₃	CH ₃	ОН	S
B767	PhO	CH₃	CH₃	CH ₃	ОН	S
B768	PhS	CH₃	СН3	CH ₃	ОН	S
B769	PhSO	CH ₃	CH ₃	СН₃	ОН	S
B770	PhSO ₂	CH₃	CH ₃	CH ₃	ОН	S
B771	CN	СН₃	СН₃	СН₃	ОН	S
B772	CH ₃ CH ₂	CH₃CH₂	Н	Н	ОН	S
B773	CH ₃ CH ₂ CH ₂	CH₃CH₂	Н	Н	ОН	s
B774	(CH ₃ ) ₂ CH	CH ₃ CH ₂	Н	Н	ОН	S
B775	(CH ₃ ) ₃ C	CH ₃ CH ₂	Н	Н	ОН	S
B776	CH₃S	CH₃CH₂	Н	Н	ОН	s
B777	CH₃SO	CH ₃ CH ₂	Н	Н	ОН	S
B778	CH ₃ SO ₂	CH ₃ CH ₂	Н	Н	ОН	S
B779	Ph	CH₃CH₂	Н	Н	ОН	S
B780	CH₃O	CH ₃ CH ₂	Н	Н	ОН	S
B781	CH₃CO₂	CH₃CH₂	Н	Н	ОН	S
B782	CH₃CH₂CO₂	CH₃CH₂	Н	Н	ОН	S
B783	CH ₂ =CHCH ₂	CH₃CH₂	Н	Н	ОН	S
B784	HCCCH₂	CH₃CH₂	Н	Н	ОН	S
B785	CF₃	CH₃CH₂	Н	Н	ОН	S
B786	(CH ₃ ) ₂ NSO ₂	CH₃CH₂	Н	Н	ОН	S
B787	(CH₃)₂N	CH₃CH₂	Н	H	ОН	s
B788	PhO	CH₃CH₂	Н	Н	ОН	s
B789	PhS	CH₃CH₂	Н	Н	ОН	s
B790	PhSO	CH₃CH₂	Н	Н	ОН	s
B791	PhSO ₂	CH₃CH₂	Н	Н	ОН	s

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Radical	$R_{44}$	R ₃₇	R ₃₈	R ₃₉	$R_{40}$	W
B792	CN	CH₃CH₂	Н	Н	ОН	S
B793	Н	Н	Н	Н	ОН	SO ₂
B794	СН₃	Н	Н	Н	ОН	SO ₂
B795	CH₃CH₂	н	Н	Н	OH	SO ₂
B796	CH ₃ CH ₂ CH ₂	Н	Н	Н	OH	SO ₂
B797 [†]	(CH₃)₂CH	H.	Н	Н	ОН	SO ₂
B798	(CH₃)₃C	Н	Н	Н	ОН	SO ₂
B799	CH₃S	Н	Н	Н	OH	SO ₂
B800	CH₃SO	Н	Н	Н	ОН	SO ₂
B801	CH ₃ SO ₂	Н	Н	Н	ОН	SO ₂
B802	Ph	Н	Н	Н	ОН	SO ₂
B803	CH₃O	Н	Н	Н	ОН	SO ₂
B804	CH ₃ CO ₂	Н	Ή	н.	ОН	SO ₂
B805	CH ₃ CH ₂ CO ₂	Н	Н	Н	ОН	SO ₂
B806	CH ₂ =CHCH ₂	Н	Н	Н	ОН	SO ₂
B807	HCCCH₂	н	Н	Н	ОН	SO ₂
B808	CF ₃	Н	Н	Н	ОН	SO ₂
B809	(CH ₃ ) ₂ NSO ₂	H	Н	Н	ОН	SO ₂
B810	(CH ₃ ) ₂ N	н	Н	H	ОН	SO ₂
B811	PhO	Н	Н	Н	ОН	SO ₂
B812	PhS	Н	Η,	Н	ОН	SO ₂
B813	PhSO	н	Н	Н	ОН	SO ₂
B814	PhSO ₂	Н	Н	Н	ОН	SO ₂
B815	CN	Н	Н	Н	ОН	SO ₂
B816	СН₃	CH₃	Н	Н	ОН	SO ₂
B817	CH₃CH₂	CH₃	н	Н	ОН	SO ₂
B818	CH₃CH₂CH₂	СН₃	Н	Н	ОН	SO ₂
B819	(CH₃)₂CH	СН₃	Н	Н	ОН	SO ₂
B820	(CH₃)₃C	СН₃	Н	Н	ОН	SO ₂
B821	CH₃S	CH₃	Н	Н	ОН	SO ₂
B822	CH₃SO	CH₃	Н	Н	ОН	SO ₂
B823	CH₃SO₂	CH₃	Н	Н	ОН	SO ₂
B824	Ph	CH₃	Н	Н	ОН	SO ₂
		~		-	•	

Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	R ₄₀	W
B825	CH₃O	CH₃	Н	Н	ОН	SO ₂
B826	CH ₃ CO ₂	CH₃	Н	Н	ОН	SO ₂
B827	CH ₃ CH ₂ CO ₂	CH₃	Н	Н	ОН	SO ₂
B828	CH ₂ =CHCH ₂	CH₃	Н	Н	ОН	SO ₂
B829	HCCCH₂	CH₃	Н	Н	ОН	SO ₂
B830	CF ₃	CH₃	Н	Н	ОН	SO ₂
B831	(CH ₃ ) ₂ NSO ₂	CH ₃	Н	Н	ОН	SO ₂
B832	(CH₃)₂N	CH₃	Н	Н	ОН	SO ₂
B833	PhO ·	CH₃	Н	Н	ОН	SO ₂
B834	PhS	CH ₃	Н	Н	ОН	SO ₂
B835	PhSO	CH₃	Н	Н	ОН	SO ₂
B836	PhSO ₂	CH ₃	Н	Н	ОН	SO ₂
B837	CN	CH₃	Н	Н	ОН	SO ₂
B838	CH ₃	Н	CH₃	Н	ОН	SO ₂
B839	CH₃CH₂	Н	CH ₃	H	ОН	SO ₂
B840	CH ₃ CH ₂ CH ₂	Η.	CH₃	Н	ОН	SO ₂
B841	(CH₃)₂CH	Н	CH₃	Н	ОН	SO ₂
B842	$(CH_3)_3C$	Н	CH ₃	Н	ОН	SO ₂
B843	CH₃S	Н	CH ₃	Н	ОН	SO ₂
B844	CH₃SO	Н	CH ₃	Н	ОН	SO ₂
B845 ·	CH₃SO₂	Н	CH ₃	Н	ОН	SO ₂
B846	Ph	Н	CH ₃	Н	ОН	SO ₂
B847	CH₃O	Н	CH ₃	Н	ОН	SO ₂
B848	CH₃CO₂	Н	CH ₃	Н	ОН	SO ₂
B849	CH₃CH₂CO₂	Н	CH ₃	Н	ОН	SO ₂
B850	CH ₂ =CHCH ₂	Н	CH₃	H	ОН	SO ₂
B851	HCCCH₂	Н	CH ₃	Н	ОН	SO ₂
B852	CF ₃	Н	CH ₃	Н	ОН	SO ₂
B853	(CH ₃ ) ₂ NSO ₂	Н	CH₃	Н	ОН	SO ₂
B854	$(CH_3)_2N$	Н	CH₃	Н	ОН	SO ₂
B855	PhO	Н	CH₃	Н	ОН	SO ₂
B856	PhS	Н	CH₃	Н	ОН	SO ₂
B857	PhSO	Н	CH₃	Η.	ОН	SO ₂

Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	$R_{40}$	W
B858	PhSO ₂	Н	CH ₃	Н	ОН	SO ₂
B859	CN	Н	СН₃	Н	ОН	SO ₂
B860	CH₃	СН₃	СН₃	Н	ОН	SO ₂
B861	CH₃CH₂	СНз	СН₃	Н	ОН	SO ₂
B862	CH₃CH₂CH₂	CH ₃	CH ₃	Н	ОН	SO ₂
B863	(CH₃)₂CH	CH ₃	CH ₃	Н	ОН	SO ₂
B864	(CH₃)₃C	CH ₃	CH ₃	Н	ОН	SO ₂
B865	CH₃S	СН₃	CH ₃	Н	ОН	SO ₂
B866	CH₃SO	СН₃	CH ₃	Н	ОН	SO ₂
B867	CH ₃ SO ₂	СНз	СН₃	H	OH	SO ₂
B868	· Ph	СН₃	CH₃	Н	ОН	SO ₂
B869	CH₃O	CH₃	СН₃	Н	ОН	SO ₂
B870	CH ₃ CO ₂	CH₃	CH ₃	Н	ОН	SO ₂
B871	CH ₃ CH ₂ CO ₂	СН₃	СН₃	Н	ОН	SO ₂
B872	CH ₂ =CHCH ₂	СН₃	CH₃	Н	ОН	SO ₂
B873	HCCCH₂	СН₃	СН₃	Н	ОН	SO ₂
B874	CF ₃	CH ₃	CH ₃	Н	ОН	SO ₂
B875	(CH ₃ ) ₂ NSO ₂	CH₃	CH₃	Н	ОН	SO ₂
B876	$(CH_3)_2N$	CH ₃	CH₃	Н	ОН	SO ₂
B877	PhO	CH ₃	СН₃	Н	ОН	SO ₂
B878	PhS	CH ₃	CH ₃	Н	ОН	SO ₂
B879	PhSO	CH ₃	СН₃	Н	OH	SO₂
B880	PhSO₂	CH ₃	СН₃	Н	ОН	SO₂
B881	CN	CH₃	CH ₃	Н	ОН	SO₂
B882	CH₃	СН₃	CH ₃	СН₃	ОН	SO ₂
B883	CH₃CH₂	CH₃	CH ₃	СН₃	ОН	SO ₂
B884	CH₃CH₂CH₂	CH₃	CH ₃	СН₃	ОН	SO ₂
B885	(CH ₃ ) ₂ CH	CH₃	CH ₃	СН₃	ОН	SO ₂
B886	(CH ₃ ) ₃ C	CH₃	CH₃ (	CH₃	ОН	SO ₂
B887	CH₃S	CH ₃	CH₃ (	CH₃	ОН	SO ₂
B888	CH₃SO	CH₃	CH₃ (	CH₃	ОН	SO ₂
B889	CH₃SO₂	CH₃	CH₃ (	CH₃	ОН	SO ₂
B890	Ph	CH₃	CH₃ (	CH₃	ОН	SO ₂

Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	R ₄₀		W
B891	CH₃O	CH ₃	СН₃	CH ₃	ОН		SO ₂
B892	CH ₃ CO ₂	CH₃	CH ₃	CH ₃	ОН		SO ₂
B893	CH ₃ CH ₂ CO ₂	CH₃	СН₃	CH₃	ОН		SO ₂
B894	CH ₂ =CHCH ₂	CH₃	CH ₃	CH₃	ОН		SO ₂
B895	HCCCH ₂	CH₃	CH₃	СН₃	ОН		SO ₂
B896	CF ₃	СН₃	CH ₃	CH₃	ОН		SO ₂
B897	$(CH_3)_2NSO_2$	СН₃	CH₃	СН₃	ОН		SO ₂
B898	(CH ₃ ) ₂ N	СН₃	CH ₃	СН₃	ОН		SO ₂
B899	PhO	СН₃	CH ₃	CH ₃	ОН		SO ₂
B900	PhS	СНз	CH ₃	СН3	ОН		SO ₂
B901	PhSO	СН₃	CH ₃	СН₃	ОН		SO ₂
B902	PhSO ₂	СН₃	CH ₃	СН₃	ОН		SO ₂
B903	CN	СН₃	СН3	СН3	ОН		SO ₂
B904	CH ₃ CH ₂	CH ₃ CH ₂	Н	Н	ОН		SO ₂
B905	CH ₃ CH ₂ CH ₂	CH ₃ CH ₂	Н	Н	ОН		SO₂
B906	(CH₃)₂CH	CH₃CH₂	Н	Н	ОН		SO ₂
B907	$(CH_3)_3C$	CH₃CH₂	Н	Н	ОН		SO ₂
B908	CH₃S	CH ₃ CH ₂	Н	Н	ОН		SO ₂
B909	CH₃SO	CH₃CH₂	H	Н	ОН		SO ₂
B910	CH₃SO₂	CH₃CH₂	Н	Н	OH .		SO ₂
B911	Ph	CH₃CH₂	Н	H	ОН		SO ₂
B912	CH₃O	CH₃CH₂	· <b>H</b>	Н	ОН		SO ₂
B913	CH₃CO₂	CH₃CH₂	Н	Н	ОН		SO ₂
B914	CH ₃ CH ₂ CO ₂	CH₃CH₂	Н	Н	ОН		SO ₂
B915	CH ₂ =CHCH ₂	CH ₃ CH ₂	Н	Н	ОН		SO ₂
B916	HCCCH₂	CH ₃ CH ₂	Н	Н	ОН	•	SO ₂
B917	CF ₃	CH ₃ CH ₂	Н	Н	ОН		SO ₂
B918	(CH ₃ )₂NSO ₂	CH ₃ CH ₂	Н	Н	ОН		SO ₂
B919	(CH₃)₂N	CH ₃ CH ₂	Н	Н	ОН		SO ₂
B920	PhO	CH ₃ CH ₂	Н	Н	ОН		SO ₂
B921	PhS	CH ₃ CH ₂	Н	Н	ОН		SO ₂
B922	PhSO	CH₃CH₂	Н	Н	ОН		SO ₂
B923	PhSO₂	CH₃CH₂	Н	Н	ОН		SO ₂

Radical	$R_{44}$	R ₃₇	$R_{38}$	R ₃₉	R ₄₀	W
B924	CN	CH₃CH₂	Н	H	ОН	SO ₂
B925	н	Н	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B926	CH₃	Н	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B927	CH₃CH₂	Н	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B928	CH₃CH₂CH₂	H	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B929	(CH ₃ ) ₂ CH	Н	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B930	(CH ₃ ) ₃ C	Н	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B931	CH₃S	Н	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B932	CH₃SO	н	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B933	CH ₃ SO ₂	Н	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B934	Ph	Н	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B935	CH₃O	Н	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B936	CH ₃ CO ₂	Н	Н	. н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B937	CH ₃ CH ₂ CO ₂	Н	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B938	CH ₂ =CHCH ₂	Н	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B939	HCCCH₂	H	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B940	CF₃	Н	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B941	(CH ₃ ) ₂ NSO ₂	Н	Н	H	ОН	CH(CO ₂ CH ₂ CH ₃ )
B942	(CH₃)₂N	Н	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B943	PhO	H .	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B944	PhS	Н	Н	H	OH	CH(CO ₂ CH ₂ CH ₃ )
B945	PhSO	Н	H	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B946	PhSO ₂	Н	Н	Н	ΟĤ	CH(CO ₂ CH ₂ CH ₃ )
B947	CN	Н	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B948	CH₃	CH ₃	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B949	CH₃CH₂	CH ₃	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B950	CH₃CH₂CH₂	.CH ₃	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B951	(CH₃)₂CH	CH₃	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B952	(CH ₃ ) ₃ C	CH ₃	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B953	- CH₃S	CH₃	H	Н	OH	CH(CO ₂ CH ₂ CH ₃ )
B954	CH₃SO	CH₃	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B955	CH ₃ SO ₂	CH ₃	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B956	Ph	CH₃	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )

Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	R ₄₀	W
B957	CH₃O	CH₃	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B958	CH ₃ CO ₂	CH ₃	Н	٠Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B959	CH ₃ CH ₂ CO ₂	CH₃	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B960	CH ₂ =CHCH ₂	CH₃	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B961	HCCCH₂	CH₃	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B962	· CF ₃	CH₃	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B963	(CH ₃ ) ₂ NSO ₂	CH ₃	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B964	(CH₃)₂N	CH₃	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B965	PhO	CH₃	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B966	PhS	CH ₃	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B967	PhSO	CH₃	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B968	PhSO ₂	CH ₃	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B969	CN	CH₃	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B970	CH ₃	Н	CH ₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B971	CH₃CH₂	Н	CH ₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B972	CH ₃ CH ₂ CH ₂	Н	CH₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B973	(CH ₃ ) ₂ CH	Н	CH ₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B974	(CH₃)₃C	Н	CH ₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B975	CH₃S	Н	ČH³	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B976	CH₃SO	Н	CH ₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B977	CH₃SO₂	Н	CH ₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B978	Ph	Н	CH ₃	H	ОН	CH(CO ₂ CH ₂ CH ₃ )
B979	CH₃O	Н	CH ₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B980	CH₃CO₂	Н	CH ₃	H	ОН	CH(CO ₂ CH ₂ CH ₃ )
B981	CH₃CH₂CO₂	Н	CH ₃	Н	OH	CH(CO ₂ CH ₂ CH ₃ )
B982	CH ₂ =CHCH ₂	Н	CH ₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B983	HCCCH₂	Н	CH₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B984	CF₃	Н	CH ₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B985	(CH₃)₂NSO₂	Н	CH₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B986	$(CH_3)_2N$	Н	СН3	Н	OH	CH(CO ₂ CH ₂ CH ₃ )
B987	PhO	Н	CH ₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B988	PhS	Н	СН3	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B989	PhSO	Н	CH ₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )

Radical	$R_{44}$	R ₃₇	R ₃₈	R ₃₉	R ₄₀	w
B990	PhSO ₂	Н	CH₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B991	CN	Н	CH₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B992	CH ₃	CH ₃	CH₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B993	CH₃CH₂	CH ₃	CH₃	Н	ОН	CH(CO₂CH  2CH3)
B994	CH ₃ CH ₂ CH ₂	CH ₃	CH ₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B995	(CH ₃ ) ₂ CH	CH ₃	CH₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B996	(CH ₃ ) ₃ C	CH ₃	CH ₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B997	CH₃S	CH ₃	CH ₃	Н	ОН	CH(CO₂CH₂CH₃)
B998	CH₃SO	CH ₃	CH ₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B999	CH ₃ SO ₂	CH ₃	CH ₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1000	Ph	CH₃	CH₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1001	CH₃O	СН₃	CH₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1002	CH ₃ CO ₂	СН₃	СН₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1003	CH ₃ CH ₂ CO ₂	CH ₃	СН₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1004	CH ₂ =CHCH ₂	CH ₃	СН₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1005	HCCCH₂	CH₃	CH ₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1006	CF ₃	CH ₃	CH₃	H	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1007	(CH ₃ ) ₂ NSO ₂	CH ₃	CH ₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1008	(CH₃)₂N	CH ₃	CH ₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1009	PhO	CH₃	СН3	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1010	PhS	СН₃	CH ₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1011	PhSO	CH ₃	CH ₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1012	PhSO ₂	CH₃	CH ₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1013	CN	CH ₃	CH₃	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1014	CH₃	CH ₃	CH ₃	CH ₃	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1015	CH₃CH₂	CH ₃	CH ₃	CH ₃	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1016	CH ₃ CH ₂ CH ₂	CH ₃	CH ₃	CH ₃	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1017	(CH ₃ )₂CH	CH ₃	CH ₃	CH ₃	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1018	(CH₃)₃C	CH₃	CH ₃	CH ₃	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1019	CH₃S	CH ₃	CH₃	CH ₃	OH	CH(CO ₂ CH ₂ CH ₃ )
B1020	CH₃SO	CH ₃	CH₃	CH ₃	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1021	CH₃SO₂	CH₃	CH ₃	СНз	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1022	Ph	CH₃	CH ₃	СНз	ОН	CH(CO ₂ CH ₂ CH ₃ )
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Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	R ₄₀	W
B1023	CH₃O	CH ₃	CH ₃	CH ₃	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1024	CH₃CO₂	CH₃	CH ₃	СНз	OH	CH(CO ₂ CH ₂ CH ₃ )
B1025	CH ₃ CH ₂ CO ₂	CH₃	CH₃	CH ₃	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1026	CH ₂ =CHCH ₂	CH₃	СН₃	CH ₃	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1027	HCCCH₂	CH₃	CH₃	СН₃	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1028	CF ₃	СН₃	CH ₃	СНз	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1029	(CH ₃ ) ₂ NSO ₂	CH₃	CH ₃	CH ₃	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1030	(CH ₃ )₂N	СН₃	CH₃	СН3	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1031	PhO	СН₃	CH₃	CH ₃	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1032	PhS	CH ₃	CH₃	СНз	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1033	PhSO	СН₃	CH₃	СН₃	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1034	PhSO ₂	СН₃	CH ₃	CH ₃	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1035	CN	СН₃	CH₃	CH ₃	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1036	CH₃CH₂	CH₃CH₂	Н	H	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1037	CH₃CH₂CH₂	CH₃CH₂	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1038	(CH ₃ ) ₂ CH	CH₃CH₂	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1039	(CH ₃ ) ₃ C	CH₃CH₂	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1040	CH₃S	CH₃CH₂	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1041	CH₃SO	CH₃CH₂	H '	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1042	CH ₃ SO ₂	CH₃CH₂	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1043 .	Ph	CH₃CH₂	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1044	CH₃O	CH₃CH₂	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1045	CH ₃ CO ₂	CH₃CH₂	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1046	CH ₃ CH ₂ CO ₂	CH ₃ CH ₂	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1047	CH ₂ =CHCH ₂	CH₃CH₂	Н	ŀН	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1048	HCCCH₂	CH₃CH₂	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1049	CF ₃	CH₃CH₂	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1050	(CH ₃ ) ₂ NSO ₂	CH₃CH₂	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1051	(CH ₃ )₂N	CH₃CH₂	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1052	PhO	CH₃CH₂	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1053	PhS	CH₃CH₂	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1054	PhSO	CH₃CH₂	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1055	PhSO₂	CH₃CH₂	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )

Radical	R ₄₄	R ₃₇	R ₃₈	R ₃₉	R ₄₀	· W
B1056	. CN	CH₃CH₂	Н	Н	ОН	CH(CO ₂ CH ₂ CH ₃ )
B1057	CH₃OCO	н	Н	Н	ОН	CHPh
B1058	Н	Н	Н	Н	ОН	CHPh
B1059	н	Н	Н	Н	ОН	CH(CH₂ĈH₃)
B1060	Н	Н	Н	Н	ОН	CH(CH ₂ CH ₂ CH ₃ )
B1061	Н	Н	Н	Н	ОН	CH(CH(CH ₃ ) ₂ )
B1062	Н	Н	Н	Н	ОН	CH(C(CH ₃ ) ₃ )
B1063	Н	Н	Н	Н	ОН	C(CH ₃ ) ₂
B1064	Н	Н	Н	Н	ОН	CH(CF ₃ )
B1065	CH₃OCO	H	Н	Н	ОН	C(CH ₃ )(CF ₃ )
B1066	н Н	H.	Н	Н	ОН	C(CH ₃ )(CF ₃ )
B1067	CH ₃ OCO	CH₃O	Н	Н	ОН	CH ₂
B1068	2 <b>H</b>	CH₃O	Н	Н	ОН	CH₂
B1069	CH₃O	CH₃OCO	Н	CH₃	OH	CH₂
B1070	CH₃O	Н	CH₃	Н	ОН	CH₂
B1071	CI	н	Н	Н	ОН	CH₂
B1072	F	Н	Н	Н	ОН	CH₂
B1073	Н	Н	Н	Н	ОН	CH(OCH₃)₂
B1074	Н	Н	Н	Н	ОН	CH ₂ OSO ₂ CH ₃
B1075	CH ₃	CH₃	CH ₃	CH ₃	ОН	S(O)
B1076	CICH₂CH₂	Н	H	Н	OH	CH₂
B1077	HO(CH ₂ ) ₂	Н	Н	Н	ОН	CH₂
B1078	MsO(CH ₂ ) ₂	Н	Н	Н	ОН	CH ₂
B1079	HOCH(CH₃)CH₂	Н	Н	Н	ОН	CH ₂
B1080	MsOCH(CH ₃ )CH ₂	Н	Н	Н	ОН	CH ₂
B1081	(CH₃) ₂ CH	Н	CH ₃	CH ₃	ОН	CH ₂
B1082	HCCCH₂	Н	CH ₃	CH ₃	ОН	CH ₂
B1083	H ₂ C=CCH ₂	Н	CH ₃	CH ₃	ОН	CH ₂

In the following Table 7 Q is  $Q_6$ 

$$R_{83}$$
  $R_{84}$   $R_{85}$   $R_{85}$   $R_{86}$   $(CH_2)p$ 

and  $Q_{\mbox{\scriptsize 6}}$  represents the following radicals C:

Table 7: Radicals C:

Radical	R ₈₄	R ₈₅	R ₈₆	R ₈₃	р	W
C1	Н	н	Н	ОН	1	CH ₂
C2	CH₃	Н	Н	ОН	1	CH ₂
C3	CH ₃ CH ₂	Н	Н	ОН	1	CH ₂
C4	CH₃CH₂CH₂	Н	Н	ОН	1	CH ₂
C5	(CH₃)₂CH	Н	Н	ОН	1	CH ₂
C6	(CH₃)₃C	Н	Н	ОН	1	CH ₂
C7	CH₃S	Н	Н	ОН	1	CH ₂
C8	CH₃SO	Н	Н	ОН	1	CH ₂
C9	CH₃SO₂	Н	Н	ОН	1	CH₂
C10	Ph	Н	Н	ОН	1	CH ₂
C11	CH₃O	Н	Н	ОН	1	CH ₂
C12	CH ₃ OCO ₂	Н	Н	ОН	1	CH ₂
C13	CH ₃ CH ₂ OCO ₂	Н	Н	ОН	1	CH ₂
C14	CH ₂ =CHCH ₂	Н	Н	ОН	1	CH ₂
C15	HCCCH ₂	Н	Н	ОН	1	CH ₂
C16	CF₃	H	H-	ОН	1	CH ₂
C17	(CH ₃ ) ₂ NSO ₂	Н	н	ОН	1	CH₂
C18	$(CH_3)_2N$	Н	Н	ОН	1	CH ₂
C19	PhO	н	Н	ОН	1	CH₂
C20	PhS	Н	Н	ОН	1	CH ₂
C21	PhSO	Н	Н	ОН	1	CH ₂
C22	PhSO₂	Н	Н ·	ОН	1	CH ₂

Radical	R ₈₄	R ₈₅	R ₈₆	R ₈₃	р	W
C23	CN	Н	Н	ОН	1	CH ₂
C24	CH ₃	СН₃	H-	ОН	1	CH ₂
C25	CH₃CH₂	СН₃	Н	ОН	1	CH₂
C26	CH ₃ CH ₂ CH ₂	СН₃	Н	ОН	1	CH₂
C27	(CH ₃ )₂CH	СН₃	Н	ОН	1	CH₂
C28	(CH ₃ ) ₃ C	CH ₃	Н	ОН	1	CH₂
C29	CH₃S	СН₃	Н	ОН	1	CH₂
C30	CH₃SO	СН₃	Н	ОН	1	CH₂
C31	CH ₃ SO ₂	СНз	H	ОН	1	CH ₂
C32	. Ph	СН₃	Н	ОН	1	CH ₂
C33	CH₃O	СН₃	Н	ОН	1	CH ₂
C34	CH ₃ OCO ₂	СН₃	H	ОН	1	CH ₂
C35	CH ₃ CH ₂ OCO ₂	СН₃	Н	ОН	1	CH ₂
C36	CH ₂ =CHCH ₂	CH₃	Н	ОН	1	CH ₂
C37	HCCCH₂	CH ₃	Н	ОН	1	CH₂
C38	CF ₃	CH ₃	Н	ОН	1	CH₂
C39	(CH ₃ ) ₂ NSO ₂	CH ₃	Н	ОН	1	CH ₂
C40	(CH₃)₂N	CH ₃	Н	ОН	1	CH ₂
C41	PhO	CH₃	Н	ОН	1	.CH ₂
C42	PhS	CH ₃	Н	ОН	1	CH ₂
C43	PhSO	CH₃	Н	ОН	1	CH ₂
C44	PhSO ₂	CH ₃	Н	ОН	1	CH ₂
C45	CN	CH ₃	Н	ОН	1	CH ₂
C46	Н	Н	Н	ОН	4	CH ₂
C47 _.	CH₃	н	Н	ОН	4	CH ₂
C48	CH₃CH₂	Н	Н	ОН	4 ·	CH ₂
C49	CH₃CH₂CH₂	Н	Н	ОН	4	CH ₂
C50	(CH₃)₂CH	Н	Н	ОН	4	CH ₂
C51	(CH₃)₃C	Н	Н	ОН	4	CH₂
C52	CH₃S	H	Η¯	ÓН	4	CH ₂
C53	CH₃SO	Н	Н	ОН	4	CH ₂
C54	CH₃SO₂	Н	Н	ОН	4	CH ₂
C55	····Ph	Н	Н	ОН	4	CH ₂

Radical	R ₈₄	R ₈₅	R ₈₆	R ₈₃	р	W
C56	CH₃O	Н	Н	ОН	4	CH₂
C57	CH ₃ OCO ₂	н	Н	ОН	4	CH ₂
C58	CH ₃ CH ₂ OCO ₂	Н	Н	ОН	4	CH ₂
C59	CH ₂ =CHCH ₂	Н	Н	ОН	4	CH ₂
C60	HCCCH₂	Н	Н	ОН	4	CH₂
C61	CF₃	Н	Н	ОН	4	CH ₂
C62	(CH ₃ ) ₂ NSO ₂	Н	Н	ОН	4	CH ₂
C63	(CH₃)₂N	Н	Н	ОН	4	CH ₂
C64	PhO	Н	Н	ОН	4	CH₂
C65	PhS	Н	Н	ОН	4	CH₂
C66	PhSO	Н	Н	ОН	4	CH₂
<b>C67</b> .	PhSO ₂	н	Н	ОН	4	CH₂
C68	CN	Н	Н	ОН	4	CH ₂
C69	CH₃	CH ₃	Н	ОН	4	CH ₂
C70	CH ₃ CH ₂	CH₃	Н	ОН	4	CH ₂
C71	CH ₃ CH ₂ CH ₂	СН₃	Н	ОН	4	CH ₂
C72	(CH ₃ ) ₂ CH	CH ₃	Н	ОН	4	CH ₂
C73	(CH ₃ ) ₃ C	CH ₃	Н	ОН	4	CH ₂
C74	CH₃S	CH ₃	Н	ОН	4	CH ₂
C75	CH₃SO	CH ₃	Н	ОН	4	CH₂
C76	CH₃SO₂	CH ₃	Н	ОН	4	CH ₂
C77	Ph	CH ₃	Н	ОН	4	CH ₂
C78	CH₃O	CH ₃	Н	ОН	4	CH ₂
C79	CH ₃ OCO ₂	CH₃	Н	ОН	4	CH ₂
C80	CH ₃ CH ₂ OCO ₂	CH ₃	Н	ОН	4	CH ₂
C81	CH ₂ =CHCH ₂	CH ₃	Н	ОН	·4	CH ₂
C82	HCCCH₂	CH ₃	Н	ОН	4	CH ₂
C83	CF₃	CH ₃	Н	ОН	4	CH ₂
C84	(CH ₃ ) ₂ NSO ₂	CH ₃	Н	ОН	4	CH ₂
C85	(CH ₃ ) ₂ N	CH ₃	Н	ОН	4	CH ₂
C86	PhO	CH ₃	Н	ОН	4	CH ₂
C87	PhS	CH₃	Н	ОН	4	CH₂
C88	PhSO	CH₃	Н	ОН	4	CH₂

Radical	R ₈₄	R ₈₅	R ₈₆	R ₈₃	р	W
C89	PhSO ₂	СН₃	Н	ОН	4	CH ₂
C90	CN	CH₃	Н	ОН	4	CH ₂
C91	Н	Н	Н	ОН	3	CH ₂
C92	CH ₃	Н	Н	ОН	3	CH ₂
C93	CH₃CH₂	Н	Н	ОН	3	CH ₂
C94	CH₃CH₂CH₂	Н	Н	ОН	3	CH ₂
C95	(CH ₃ ) ₂ CH	Н	Н	ОН	3	CH ₂
C96	(CH₃)₃C	Н	Н	ОН	3	CH ₂
C97	CH₃S	Н	Н	ОН	3	CH ₂
C98	CH₃SO	Н	Н	ОН	3	CH ₂
C99	CH₃SO₂	Н	Н	ОН	3	CH ₂
C100	Ph	Н	Н	ОН	3	CH ₂
C101	CH₃O	Н	Н	ОН	3	CH ₂
C102	CH ₃ OCO ₂	H	Н	ОН	3	CH ₂
C103	CH ₃ CH ₂ OCO ₂	Н	Н	ОН	3	CH ₂
C104	CH ₂ =CHCH ₂	Н	Н	ОН	3	CH ₂
C105	HCCCH₂	Н	Н	ОН	3	CH ₂
C106	CF ₃	Н	Н	ОН	3	CH ₂
C107	(CH ₃ ) ₂ NSO ₂	. Н	Н	ОН	3 -	CH ₂
C108	(CH₃)₂N	Н	Н	ОН	3	CH ₂
C109	PhO	Н	Н	ОН	3	CH ₂
C110	PhS	Н	Н	ОН	3	CH ₂
C111	PhSO	Н	Н	ОН	3	CH ₂
C112	PhSO₂	Н	Н	ОН	3	CH ₂
C113	CN	Н	Н	ОН	3	CH ₂
C114	CH₃	CH ₃	Н	ОН	3	CH ₂
C115	CH₃CH₂	CH₃	Н	ОН	3	CH ₂
C116	CH ₃ CH ₂ CH ₂	CH ₃	Н	OH	3	CH ₂
C117	(CH ₃ ) ₂ CH	CH₃	Н	ОН	3	CH ₂
C118	(CH₃)₃C	CH₃	H	ОН	3	CH ₂
C119	CH₃S	CH₃	Ĥ	ОН	3	CH ₂
C120	CH₃SO	СН₃	Н	ОН	3	CH ₂
C121	CH ₃ SO ₂	CH₃	Н	ОН	3	CH ₂

Radical	R ₈₄	R ₈₅	R ₈₆	R ₈₃	р	W
C122	Ph	CH₃	Н	ОН	3	CH ₂
C123	CH₃O	CH₃	Н	ОН	3	CH ₂
C124	CH₃OCO₂	CH₃	Н	ОН	3	CH ₂
C125	CH ₃ CH ₂ OCO ₂	CH₃	Н	ОН	3	CH ₂
C126	CH ₂ =CHCH ₂	CH₃	Н	ОН	3	CH ₂
C127	HCCCH₂	CH₃	Н	ОН	3	CH ₂
C128	CF ₃	CH ₃	Н	ОН	3	CH ₂
C129	(CH₃)₂NSO₂	CH₃	Н	ОН	3	CH₂
C130	$(CH_3)_2N$	CH₃	Н	ОН	3	CH ₂
C131	PhO	CH₃	Н	ОН	3	CH ₂
C132	PhS	СН₃	Н	ОН	3	CH ₂
C133	PhSO	CH ₃	Н	ОН	3	CH ₂
C134	PhSO ₂	CH ₃	Н	ОН	3	CH ₂
C135	CN	CH₃	Н	ОН	3	CH ₂
C136	CH₃CH₂	CH₃CH₂	Н	ОН	1	CH ₂
C137	Н	Н	Н	ОН	1	CH(CH ₃ )
C138	CH ₃	Η,	Н	ОН	1	CH(CH ₃ )
C139	CH ₃	CH ₃	Н	ОН	1	CH(CH ₃ )
C140	CH₂CH₃	Н	Н	ОН	1	CH(CH ₃ )
C141	CH₂CH₃	CH₃	Н	ОН	1	CH(CH ₃ )
C142	CH₃CH₂	CH ₃ CH ₂	Н	ОН	1	CH(CH ₃ )
C143	н	Н	CH ₃	ОН	1	CH ₂
C144	CH₃ .	CH ₃	CH ₃	ОН	1	CH ₂
C145	CH₃CH₂	CH ₃ CH ₂	CH ₃	ОН	1	CH ₂
C146	H	Н	Н	ОН	2	CH ₂
C147	CH₃	CH ₃	H	OH	2	CH ₂
C148	CH₃CH₂	CH ₃ CH ₂	Н	ОН	2	CH₂
C149	Н	Н	Н	ОН	5	CH ₂
C150	CH₃	CH ₃	Н	ОН	5	CH ₂
C151	CH₃CH₂	CH₃CH₂	Н	ОН	5	CH ₂

and  $Q_8$  represents the following radicals D:

Table 8: Radicals D:

Radical	R ₈₈	R ₈₉	R ₉₀	R ₉₁	R ₈₇	0	
D1	Н	н	н	Н	ОН	2	
D2	СН₃	н	Н	Н	ОН	2	
D3	CH₃CH₂	н	Н	Н	ОН	2	
D4	CH₃CH₂CH₂	н	Н	Η.	ОН	2	
D5	(CH₃)₂CH	Н	Н	Н	ОН	2	
D6	(CH ₃ ) ₃ C	Н	Н	Н	ОН	2	
D7	CH₃S	н	Н	Н	ОН	2	
D8	CH₃SO	н	Н	Н	ОН	2	
D9	CH ₃ SO ₂	Н	Н	Н	ОН	2	
D10	Ph	Н	Н	Н	ОН	2	
D11	CH₃O	Н	Н	H	ОН	2	
D12	CH ₂ =CHCH ₂	Н	Н	Н	ОН	2	
D13	HCCCH₂	Н	Н	Н	ОН	2	
D14	CF ₃	Н	Н	Н	ОН	2	
D15	PhO	Н	Н	Н	ОН	2	
D16	PhS	Н	Н	Н	ОН	2	
D17	PhSO	Н	Н	Н	ОН	2	
D18	PhSO ₂	Н	Н	Н	ОН	2	
D19	CH₃	CH₃	Н	Н	ОН	2	
D20	CH₃CH₂	CH ₃	H	Н	ОН	2	
D21	CH₃CH₂CH₂	CH ₃	Н	Н	ОН	2	
D22	(CH₃)₂CH	CH ₃	Н	Н	ОН	2	
D23	(CH ₃ ) ₃ C	CH ₃	Н	н	ОН	2	

Radical	R ₈₈	R ₈₉	R ₉₀	R ₉₁	R ₈₇	0
D24	CH₃S	CH₃	Н	Н	ОН	2
D25	CH₃SO	CH₃	Н	Н	ОН	2
D26	CH ₃ SO ₂	CH₃	Н	Н	ОН	2
D27	Ph	CH ₃	Н	Н	ОН	2
D28	CH₃O	СН₃	Н	Н	ОН	2
D29	CH ₂ =CHCH ₂	CH ₃	Н	Н	ОН	2
D30	HCCCH₂	CH ₃	Н	Н	ОН	2
D31	CF ₃	CH₃	Н	Н	ОН	2
D32	PhO	CH₃	Н	Н	ОН	2
D33	PhS	CH₃	H	Н	ОН	2
D34	PhSO	CH₃	Н	Н	ОН	2
D35	PhSO ₂	CH ₃	Н	Н	ОН	2
D36	н	Н	Н	Н	ОН	3
D37	CH₃	Н	Н	Н	ОН	3
D38	CH₃CH₂	Н	Н	Н	ОН	3
D39	CH ₃ CH ₂ CH ₂	Н	Н	Н	ОН	3
D40	(CH₃)₂CH	Н	Н	H	ОН	3
D41	(CH ₃ ) ₃ C	Н	Н	Н	ОН	3
D42	CH₃S	Н	Н	Н	ОН	3
D43	CH₃SO	Н	· H	Н	ОН	3
D44	CH ₃ SO ₂	Н	Н	Н	ОН	3
D45	Ph	Н	Н	Н	ОН	3
D46	CH₃O	Н	Н	Н	ОН	3
D47	CH ₂ =CHCH ₂	Н	Н	Н	ОН	3
D48	HCCCH₂	Н	Н	Н	ОН	3
D49	CF ₃	Н	Н	Н	ОН	3
D50	PhO	Н	Н	Н	ОН	3
D51	PhS	Н	Н	Н	ОН	3
D52	PhSO	Н	Н	Н	ОН	3
D53	PhSO ₂	Н	Н	Н	ОН	3
D54	CH ₃	СН₃	Н	Н	ОН	3
D55	CH₃CH₂	CH₃	Н	Н	ОН	3
D56	CH₃CH₂CH₂	СН₃	Н	Н	ОН	3

Radical	R ₈₈	R ₈₉	R ₉₀	R ₉₁	R ₈₇	o
D57	(CH₃)₂CH	СН₃	Н	Н	ОН	3
D58	(CH₃)₃C	СН₃	Н	Н	ОН	3
D59	CH₃S	CH₃	H	Н	ОН	3
D60	CH₃SO	CH₃	Н	Н	ОН	3
D61	CH ₃ SO ₂	CH₃	Н	Н	ОН	3
D62	Ph	CH ₃	Н	Н	ОН	3
D63	CH₃O	CH₃	Н	Н	ОН	3
D64	CH ₂ =CHCH ₂	CH₃	Н	Н	ОН	3
D65	HCCCH₂	CH₃	Н	Н	ОН	3
D66	CF ₃	CH₃	Н	Н	ОН	3
D67	PhO	CH₃	Н	Н	ОН	3
D68	PhS	CH₃	Н	Н	ОН	3
D69	PhSO	CH ₃	Н	Н	ОН	3
D70	PhSO ₂	CH ₃	Н	Н	ОН	3
D71	Н	Н	H	Н	ОН	4
D72	CH₃	Н	Н	Н	ОН	4
D73	CH ₃ CH ₂	Н	H	Н	ОН	4
D74	CH ₃ CH ₂ CH ₂	Н	Н	Н	ОН	4
D75	(CH₃)₂CH	Н	Н	Н	ОН	4
D76	(CH₃)₃C	Н	H	Н	OH	4
D77	CH₃S	Н	H	Н	ОН	4
D78	CH₃SO	Н	Н	Н	ОН	4
D79	CH₃SO₂	Н	Н	Н	ОН	4
D80	Ph	Н	Н	Н	ОН	4
D81	CH₃O	Н	Н	Н	ОН	4
D82	CH ₂ =CHCH ₂	Н	Н	Н	ОН	4
D83	HCCCH₂	Ĥ	Н	Н	ОН	4
D84	CF₃	Н	Н	Н	ОН	4
D85	PhO ·	Н	Н	Н	ОН	4
D86	PhS	Н	Н	Н	ОН	4
D87	PhSO	Н	Н	Н	ОН	4
D88	PhSO ₂	Н	Н	Н	ОН	4
D89	CH ₃	СН₃	Н	Н	ОН	4

Radical	R ₈₈	R ₈₉	R ₉₀	R ₉₁	R ₈₇	О
D90	CH₃CH₂	CH₃	Н	Н	ОН	4
D91	CH₃CH₂CH₂	CH₃	Н	Н	ОН	4
D92	(CH₃)₂CH	CH₃	H	Н	ОН	4
D93	(CH ₃ ) ₃ C	CH₃	H	Н	ОН	4
D94	CH₃S	CH₃	Н	Н	ОН	4
D95	CH₃SO	CH ₃	Н	Н	ОН	4
D96	CH ₃ SO ₂	CH₃	Н	Н	ОН	4
D97	Ph	CH₃	Н	Н	ОН	4
D98	CH₃O	CH₃	Н	Н	ОН	4
D99	CH ₂ =CHCH ₂	CH₃	Н	Н	ОН	4
D100	HCCCH ₂	CH₃	Н	Н	ОН	4
D101	CF₃	CH₃	Н	Н	ОН	4
D102	PhO	CH ₃	H	Н	ОН	4
D103	PhS	CH ₃	Н	Н	ОН	4
D104	PhSO	CH₃	Н	Н	ОН	4
D105	PhSO ₂	CH ₃	Н	Н	ОН	4
D106	н	Н	H	CH ₃	ОН	4
D107	Н	Н	Н	CH ₃	ОН	3
D108	Н	Н "	Н	Н	ОН	1
D109	CH₃	Н	Н	Н	ОН	1
D110	CH₃OCO	CH₃	Н	H	ОН	1
D111	CH₃CH₂OCO	CH ₃	Н	Н	ОН	1
D112	CH₃O	CH ₃	Н	Н	ОН	1
D113	CH₃S	CH ₃	Н	Н	OH	1
D114	CH₃SO	CH₃	Н	Н	ОН	1
D115	CH₃SO₂	CH₃	Н	Н	ОН	1
D116	CH₃CH₂	Н	Н	Н	ОН	1
D117	CH₃OCO	CH₃CH₂	H	Н	ОН	1
D118	CH₃CH₂OCO	CH₃CH₂	H	Н	ОН	1
D119	CH₃O	CH ₃ CH ₂	Н	Н	ОН	1
D120	CH₃S	CH₃CH₂	Н	Н	ОН	1
D121	CH₃SO	CH₃CH₂	Н	H	ОН	1
D122	CH₃SO₂	CH₃CH₂	Н	Н	ОН	1

Radical	R ₈₈	$R_{89}$	R ₉₀	R ₉₁	R ₈₇	0
D123	CH₃CH₂S	СН₃	Н	Н	ОН	1
D124	CH₃CH₂SO	CH ₃	Н	Н	ОН	1
D125	CH ₃ CH ₂ SO ₂	CH ₃	Н	H	ОН	1
D126	CH₃CH₂S	CH₃CH₂	Н	Н	ОН	1
D127	CH₃CH₂SO	CH₃CH₂	Н	Н	ОН	1
D128	CH ₃ CH ₂ SO ₂	CH ₃ CH ₂	Н	Н	ОН	1
D129	Н	Н	СН3	Н.	ОН	1
D130	CH ₃	Н	СН3	Н	ОН	1
D131	CH ₃ OCO	CH₃	CH ₃	Н	ОН	1
D132	CH₃CH₂OCO	CH₃	СНз	H	ОН	1
D133	CH₃O	CH₃	СН₃	Н	ОН	1
D134	CH ₃ S	CH ₃	СН₃	Н	ОН	1
D135	CH₃SO	СН₃	СНз	Н	ОН	1
D136	CH₃SO₂	CH₃	СН3	Н	ОН	1
D137	Н	Н	Н	CH ₃	ОН	1
D138	CH₃	Н	Н	CH ₃	ОН	1
D139	Н	Н	CH ₃	CH ₃	ОН	1
D140	CH₃CH₂OCO	CH₃	Н	Н	ОН	4

Table 9: Compounds of formula If:

Compd.	R ₉₂	R ₉₃	R ₉₄	R ₉₅	$Q_3$
no.			•		
A1	н	Н	Н	CF ₃	B24
A2	CH₃	н	Н	CF₃	B24
A3	CH₃CH₂	н	Н	CF ₃	B24

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Compd.	R ₉₂	R ₉₃	R ₉₄	R ₉₅	$Q_3$
no.					
A4	(CH₃)₂CH	Н	Н	CF ₃	B24
<b>A</b> 5	(CH ₃ ) ₃ C	Н	Н	CF ₃	B24
A6	cyclopropyl	Н	H	ĈF₃	B24
<b>A7</b>	CH ₃ (CH ₂ ) ₂	н	Н	CF ₃	B24
<b>A8</b>	CH₃OCH₂	Н	Н	CF ₃	B24
<b>A9</b>	CH ₃ O(CH ₂ ) ₂	Н	Н	CF ₃	B24
A10	Ph	н	Н	CF ₃	B24
A11	PhO	Н	Н	CF ₃	B24
A12	PhS	Н	Н	CF ₃	B24
A13	PhSO	Н	Н	CF ₃	B24
A14	PhSO ₂	н	Н	CF ₃	B24
A15	CH₃S	Н	Н	CF ₃	B24
A16	CH₃SO	н	Н	CF ₃	B24
A17	CF ₃	н	Н	CF ₃	B24
A18	F ₂ CH	Н	Н	CF ₃	B24
A19	HCC	н	. н	CF ₃	B24
A20	CH₃CC	Н	Н	CF ₃	B24
A21	CH ₂ =CH	Н	Н	CF ₃	B24
A22	CH ₂ =CHCH ₂	Н	Н	CF ₃	B24
A23 [.]	CH ₃ SO ₂ N(CH ₃ )	H	Н	CF ₃	B24
A24	$(CH_3)_2N$	Н	Н	CF ₃	B24
A25	(CH ₃ ) ₂ NSO ₂	Н	Н	CF ₃	B24
A26	CICH ₂	Н	Н	CF ₃	B24
A27	CH₃SCH₂	H	Н	CF ₃	B24
A28	CH ₃ SOCH ₂	н	Н	CF ₃	B24
A29	CH ₃ SO ₂ CH ₂	Н	н	CF ₃	B24
A30	[1,2,4]-triazol-1-yl-methyl	Н	Н	CF ₃	B24
A31	CH₃	CF ₃	Н	CH₃	B24
A32	CH₃	СН₃	н	CF ₃	B24
A33	Н	Н	Н	CF ₃ CF ₂	B24
A34	CH₃	Н	Н	CF ₃ CF ₂	B24
A35	CH₃CH₂	. н	Н	CF ₃ CF ₂	B24

Compd	. R ₉₂	R ₉₃	R ₉₄	R ₉₅	$Q_3$
no.					
A36	cyclopropyl	Н	н	CF ₃ CF ₂	B24
A37	(CH ₃ ) ₃ C	Н	Н	CF ₃ CF ₂	B24
A38	(CH ₃ ) ₂ CH	Н	Н	CF ₃ CF ₂	B24
A39	CH ₃ (CH ₂ ) ₂	Н	H	CF ₃ CF ₂	B24
A40	CH₃OCH₂	н	Н	CF ₃ CF ₂	B24
A41	CH ₃ O(CH ₂ ) ₂	н	Н	CF ₃ CF ₂	B24
A42	Ph	н	Н	CF ₃ CF ₂	B24
A43	PhO	н	Н	CF ₃ CF ₂	B24
A44	PhS ··	н	H	CF ₃ CF ₂	B24
A45	PhSO	Н	н	CF ₃ CF ₂	B24
A46	PhSO ₂	Н	Н	CF ₃ CF ₂	B24
A47	CH₃S	Н	Н	CF ₃ CF ₂	B24
A48	CH₃SO	н	H	CF₃CF₂	B24
A49	CF ₃	н	Н	CF₃CF₂	B24
A50	F ₂ CH	Н	Н	CF ₃ CF ₂	B24
A51	HCC	· н	Н	CF ₃ CF ₂	B24
A52	CH₃CC	, н	Н	CF ₃ CF ₂	B24
A53	CH ₂ =CH	H	ιН .	CF ₃ CF ₂	B24
A54	CH ₂ =CHCH ₂	н	Н	CF ₃ CF ₂	B24
A55	CH₃SO₂N(CH₃)	н	Н	CF ₃ CF ₂	B24
A56	(CH₃)₂N	Н	Н	CF ₃ CF ₂	B24
A57	(CH ₃ ) ₂ NSO ₂	Н	Н	CF₃CF₂	B24
A58	CICH ₂	Н	Н	CF ₃ CF ₂	B24
A59	CH₃SCH₂	н	Н.	CF ₃ CF ₂	B24
A60	CH₃SOCH₂	Н	Н	CF₃CF₂	B24
A61	CH ₃ SO ₂ CH ₂	Н	Н	CF₃CF₂	B24
A62	[1,2,4]-triazol-1-yl-methyl	н	Н	CF ₃ CF ₂	B24
A63	Н	Н	Н	CF ₃ CF ₂ CF ₂	B24
A64	CH₃	Н	Н	CF ₃ CF ₂ CF ₂	B24
A65	CH₃CH₂	н	н	CF ₃ CF ₂ CF ₂	B24
A66	cyclopropyl	н	Н	CF₃CF₂CF₂	B24
A67	(CH₃)₃C	H	Н	CF₃CF₂CF₂	B24

Compd	В	D	ь		^
Compd.	$R_{92}$	$R_{93}$	$R_{94}$	R ₉₅	$Q_3$
no.	. (011.) (11)		11		D0.4
A68	(CH₃)₂CH	H	Н	CF ₃ CF ₂ CF ₂	B24
A69	CH ₃ (CH ₂ ) ₂	Н	н	CF ₃ CF ₂ CF ₂	B24
A70	CH₃OCH₂	Н	Н	CF ₃ CF ₂ CF ₂	B24
A71	CH₃O(CH₂)₂	Н	Н	CF ₃ CF ₂ CF ₂	B24
A72	Ph	Н	Н	CF ₃ CF ₂ CF ₂	B24
A73	PhO	Н	Н	CF ₃ CF ₂ CF ₂	B24
A74	PhS	н	Н	CF ₃ CF ₂ CF ₂	B24
A75	PhSO	Н	Н	CF ₃ CF ₂ CF ₂	B24
A76	PhSO ₂	H	Н	CF ₃ CF ₂ CF ₂	B24
A77	CH₃S	Н	Н	CF ₃ CF ₂ CF ₂	B24
A78-	CH₃SO	н	Н	CF ₃ CF ₂ CF ₂	B24
A79	CF ₃	Н	· <b>H</b>	CF ₃ CF ₂ CF ₂	B24
A80	F ₂ CH	H	Н	CF ₃ CF ₂ CF ₂	B24
A81	HCC	н	Н	CF ₃ CF ₂ CF ₂	B24
A82	CH₃CC	н	Н	CF ₃ CF ₂ CF ₂	B24
A83	CH₂=CH	Н	Н	CF ₃ CF ₂ CF ₂	B24
A84	CH ₂ =CHCH ₂	Н	Н	CF ₃ CF ₂ CF ₂	B24
A85	CH ₃ SO ₂ N(CH ₃ )	н	Н	CF ₃ CF ₂ CF ₂	B24
A86	$(CH_3)_2N$	Н	Н	CF ₃ CF ₂ CF ₂	B24
A87	(CH ₃ ) ₂ NSO ₂	н	Н	CF ₃ CF ₂ CF ₂	B24
A88	CICH ₂	н	Н	CF ₃ CF ₂ CF ₂	B24
A89	CH₃SCH₂	Н	Н	CF ₃ CF ₂ CF ₂	B24
A90	CH₃SOCH₂	Н	Н	CF ₃ CF ₂ CF ₂	B24
A91	CH ₃ SO ₂ CH ₂	н	Н	CF ₃ CF ₂ CF ₂	B24
A92	[1,2,4]-triazol-1-yl-methyl	н	Н	CF₃CF₂CF₂	B24
A93	н	Н	Н	CF₂CI	B24
A94	CH₃	н	Н	CF ₂ CI	B24
A95	CH₃CH₂	н	Н	CF₂CI	B24
A96	cyclopropyl	н	Н	CF ₂ CI	B24
A97	(CH₃)₃C	н	Н	CF ₂ Cl	B24
A98	(CH ₃ ) ₂ CH	Н	Н	CF₂CI	B24
A99	CH ₃ (CH ₂ ) ₂	н	н	CF ₂ CI	B24

Compd.	$R_{92}$	R ₉₃	$R_{94}$	$R_{95}$	$Q_3$
no.					
A100	CH ₃ OCH ₂	Н	Н	CF₂CI	B24
A101	CH ₃ O(CH ₂ ) ₂	Н	Н	CF ₂ CI	B24
A102	Ph	Н	Н	ĈF₂CI	B24
A103	PhO	Н	Н	CF ₂ Cl	B24
A104	PhS	н	Н	CF ₂ CI	B24
A105	PhSO	н	Н	CF ₂ CI	B24
A106	PhSO ₂	Н	Н	CF ₂ CI	B24
A107	CH₃S	н	Н	CF ₂ CI	B24
A108	CH₃SO	Н	н .	CF ₂ CI	B24
A109	CF ₃	н	. н	CF ₂ CI	B24
A110	F ₂ CH	Н	Н	CF₂CI	B24
A111	, HCC.	Н	Н	CF₂CI	B24
A112	CH₃CC	н	Н	CF ₂ CI	B24
A113	CH ₂ =CH	Н	Н	CF ₂ CI	B24
A114	CH ₂ =CHCH ₂	Н	Н	CF ₂ Cl	B24
A115	CH ₃ SO ₂ N(CH ₃ )	Н	Н	CF ₂ Cl	B24
A116	(CH ₃ ) ₂ N	Н	Н	CF ₂ Cl	B24
A117	(CH ₃ ) ₂ NSO ₂	Н	Н	CF₂CI	B24
A118	CICH ₂	Н	Н	CF ₂ Cl	B24
A119	CH₃SCH₂	н	н	CF ₂ CI	B24
A120	CH₃SOCH₂	н	Н	CF ₂ CI	B24
A121	CH ₃ SO ₂ CH ₂	н	Н	CF ₂ CI	B24
A122	[1,2,4]-triazol-1-yl-methyl	н	Н	CF ₂ CI	B24
A123	Н	н	. Н	CHF ₂	· B24
A124	CH₃	Н	Н	CHF ₂	B24
A125	CH₃CH₂	Н	н	CHF₂	B24
A126	cyclopropyl	Н	Н	CHF ₂	B24
A127	(CH ₃ ) ₃ C	Н	н	CHF₂	B24
A128	(CH ₃ ) ₂ CH	н	H.	CHF ₂	B24
A129	CH ₃ (CH ₂ ) ₂	н	Н	CHF ₂	B24
A130	CH₃OCH₂	н	Н	CHF₂	B24
A131	CH ₃ O(CH ₂ ) ₂	н	Н	CHF ₂	B24
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Compd.	R ₉₂	$R_{93}$	$R_{94}$	R ₉₅	$Q_3$
no.	•				
A132	Ph	H	Н	CHF₂	B24
A133	PhO	H	Н	CHF ₂	B24
A134	PhS	н	Н	CHF₂	B24
A135	PhSO	н	Н	CHF ₂	B24
A136	PhSO ₂	н	Н	CHF ₂	B24
A137	CH ₃ S	H	Н	CHF ₂	B24
A138	CH₃SO	Н	Н	CHF ₂	B24
A139	CF₃	Н	Н	CHF ₂	B24
A140	F ₂ CH	н	Н	CHF ₂	B24
A141	HCC	н	Н	CHF ₂	B24
A142	CH₃CC	Н	Н	CHF ₂	B24
A143	CH ₂ =CH	Н .	Н	CHF ₂	B24
A144	CH ₂ =CHCH ₂	Н	H	CHF ₂	B24
A145	CH ₃ SO ₂ N(CH ₃ )	н	Н	CHF ₂	B24
A146	$(CH_3)_2N$	Н	Н	CHF ₂	B24
A147	(CH₃)₂NSO₂	н	Н	CHF ₂	B24
A148	CICH ₂	Н	Н	CHF ₂	B24
A149	CH₃SCH₂	Н	Н	CHF ₂	B24
A150	CH₃SOCH₂	Н	Н	CHF ₂	B24
A151	CH ₃ SO ₂ CH ₂	н	H	CHF ₂	B24
A152	[1,2,4]-triazol-1-yl-methyl	Н	Н	CHF ₂	B24
A153	н	Н	Н	CCI ₃	B24
A154	CH₃	Н	Н	CCI ₃	B24
A155	CH₃CH₂	Н	Н	CCI ₃	B24
A156	cyclopropyl	Н	Н	CCI ₃	B24
A157	(CH₃)₃C	н	Н	CCI ₃	B24
A158	(CH ₃ ) ₂ CH	н .	H	CCI ₃	B24
A159	$CH_3(CH_2)_2$	н	н	CCl ₃	B24
A160	CH ₃ OCH ₂	Н	Н	CCI ₃	B24
A161	CH ₃ O(CH ₂ ) ₂	Н	Н	CCl ₃	B24
A162	Ph	н	Н	CCl ₃	B24
A163	PhO	Н	Н	CCl ₃	B24

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Compd.	$R_{92}$	R ₉₃	R ₉₄	R ₉₅	$Q_3$
no.					
A164	PhS	н	Н	CCI ₃	B24
A165	PhSO	Н	Н	CCI ₃	B24
A166	PhSO₂	Н	Н	-CCl3	B24
A167	CH₃S	Н	Н	CCl ₃	B24
A168	CH₃SO	н	Н	CCl3	B24
A169	CF ₃	н	Н	CCI ₃	B24
A170	F₂CH	Н	Н	CCl ₃	B24
A171	HCC	н	Н	CCI ₃	B24
A172	CH₃CC	н	, <b>H</b>	CCI ₃	B24
A173	CH₂=CH	Н.	Н.	CCl3	B24
A174	CH ₂ =CHCH ₂	Н	. Н	CCl ₃	B24
A175	CH ₃ SO ₂ N(CH ₃ )	H	Н	CCl ₃	B24
A176	(CH₃)₂N	Н	Н	CCI ₃	B24
A177	(CH ₃ ) ₂ NSO ₂	Н	Н	CCI ₃	B24
A178	CICH ₂	Н	Н	CCI ₃	B24
A179	CH₃SCH₂	Н	Н	CCl ₃	B24
A180	CH₃SOCH₂	H ,	Н	CCl ₃	B24
A181	CH₃SO₂CH₂	Н	Н	CCl ₃	B24
A182	[1,2,4]-triazol-1-yl-methyl	Н	Н	CCl ₃	B24
A183	Н	Н	CH₃	CF ₃	B24
A184	CH₃	Н	CH₃	CF ₃	B24
A185	CH₃CH₂	Н	CH₃	CF ₃	B24
A186	cyclopropyl	Н	CH₃	CF ₃	B24
A187	(CH₃)₃C	H.	CH₃	CF ₃	B24
A188	(CH₃)₂CH	н	CH₃	CF ₃	B24
A189	CH ₃ (CH ₂ ) ₂	н	CH₃	CF ₃	B24
A190	CH ₃ OCH ₂	Н	CH₃	CF ₃	B24
A191	CH ₃ O(CH ₂ ) ₂	Н	CH ₃	CF ₃	B24
A192	- Ph	Н	CH ₃	CF ₃	B24
A193	PhO	Н	CH₃	CF ₃	B24
A194	PhS	Н	CH₃	CF ₃	B24
A195	PhSO	Н	CH₃	CF ₃	B24

Compd.	R ₉₂	R ₉₃	$R_{94}$	$R_{95}$	$Q_3$
no.					
A196	PhSO ₂	Н	CH₃	CF₃	B24
A197	CH₃S	н	CH ₃	CF ₃	B24
A198	CH₃SO	Н	CH₃	ĈF₃	B24
A199	CF ₃	Н	CH₃	CF₃	B24
A200	F₂CH	H ·	CH₃	CF ₃	B24
A201	HCC	н	CH ₃	CF ₃	B24
A202	CH₃CC	н	CH₃	CF ₃	B24
A203	CH ₂ =CH	н	CH₃ .	CF ₃	B24
A204	CH ₂ =CHCH ₂	Н	CH₃	CF ₃	B24
A205	CH ₃ SO ₂ N(CH ₃ )	Н	CH₃	CF ₃	B24
A206	(CH₃)₂N	Н	CH₃	CF ₃	B24
A207	(CH ₃ ) ₂ NSO ₂	• н	CH ₃	CF ₃	B24
A208	ClCH₂	Н	° CH₃	CF ₃	B24
A209	CH₃SCH₂	Н	CH₃	CF ₃	B24
A210	CH₃SOCH₂	н	CH₃	CF ₃	B24
A211	CH ₃ SO ₂ CH ₂	. н	CH₃	CF ₃	B24
A212	Н	н	CH₃	CF ₃ CF ₂	B24
A213	CH₃	н	CH₃	CF ₃ CF ₂	B24
A214	CH₃CH₂	. н	CH ₃	CF ₃ CF ₂	B24
A215	cyclopropyl	н	CH₃	CF ₃ CF ₂	B24
A216	(CH ₃ ) ₃ C	н	CH₃	CF ₃ CF ₂	B24
A217	(CH ₃ ) ₂ CH	н	CH₃	CF ₃ CF ₂	B24
A218	$CH_3(CH_2)_2$	Н	CH₃	CF₃CF₂	B24
A219	CH₃OCH₂	Н	CH₃	CF ₃ CF ₂	B24
A220	CH ₃ O(CH ₂ ) ₂	Н	CH₃	CF₃CF₂	B24
A221	Ph	Н	СН₃	CF ₃ CF ₂	B24
A222	PhO	н	CH₃	CF ₃ CF ₂	B24
A223	PhS	н	СН₃	CF ₃ CF ₂	B24
A224	PhSO	н	CH₃	CF ₃ CF ₂	B24
A225	PhSO ₂	н	CH₃	CF ₃ CF ₂	B24
A226	CH₃S	н	CH₃	CF ₃ CF ₂	B24
A227	CH₃SO	н	CH₃	CF ₃ CF ₂	B24
				_	

Compd.	R ₉₂	R ₉₃	R ₉₄	R ₉₅	$Q_3$
no.					
A228	CF ₃	н	СН₃	CF ₃ CF ₂	B24
A229	F ₂ CH	н	СН₃	CF ₃ CF ₂	B24
A230	HCC	н	СН₃	CF ₃ CF ₂	B24
A231	CH₃CC	н	CH ₃	CF ₃ CF ₂	B24
A232	CH ₂ =CH	· H	CH₃	CF₃CF₂	B24
A233	CH ₂ =CHCH ₂	н	CH₃	CF₃CF₂	B24
A234	CH ₃ SO ₂ N(CH ₃ )	н	CH₃	CF₃CF₂	B24
A235	(CH ₃ ) ₂ N	н	CH ₃	CF ₃ CF ₂	B24
A236	(CH ₃ ) ₂ NSO ₂	Н	CH₃	CF₃CF₂	B24
A237	CICH ₂	н	СН₃	CF ₃ CF ₂	B24
A238	CH₃SCH₂	н	CH₃	CF ₃ CF ₂	B24
A239	CH ₃ SOCH ₂	Н	CH₃	CF ₃ CF ₂	B24
A240	CH ₃ SO ₂ CH ₂	Н	CH₃	CF₃CF₂	B24
A241	Н	Н	CH ₃	CF ₃ CF ₂ CF ₂	<b>B24</b>
A242	CH ₃	н	CH ₃	CF ₃ CF ₂ CF ₂	B24
A243	CH₃CH₂	н	CH ₃	CF ₃ CF ₂ CF ₂	B24
A244	cyclopropyl	н	CH ₃	CF ₃ CF ₂ CF ₂	B24
A245	(CH₃)₃C	Н	CH₃	CF ₃ CF ₂ CF ₂	B24
A246	(CH₃) ₂ CH	<b>H</b> .	CH₃	CF ₃ CF ₂ CF ₂	B24
A247	$CH_3(CH_2)_2$	H _.	CH ₃	CF ₃ CF ₂ CF ₂	B24
A248	CH₃OCH₂	H	CH ₃	CF ₃ CF ₂ CF ₂	B24
A249	CH ₃ O(CH ₂ ) ₂	н	CH ₃	CF ₃ CF ₂ CF ₂	B24
A250	Ph	н	CH ₃	CF ₃ CF ₂ CF ₂	B24
A251	PhO	Н	CH ₃	CF ₃ CF ₂ CF ₂	B24
A252	PhS	Н	CH ₃	CF ₃ CF ₂ CF ₂	B24
A253	PhSO	н	CH ₃	CF ₃ CF ₂ CF ₂	B24
A254	PhSO ₂	Н	CH₃	CF ₃ CF ₂ CF ₂	B24
A255	CH₃S	н	CH₃	CF ₃ CF ₂ CF ₂	B24
A256	CH₃SO	- <b>H</b>	CH₃	CF ₃ CF ₂ CF ₂	B24
A257	CF ₃	н	CH₃	CF ₃ CF ₂ CF ₂	B24
A258	F₂CH	н	CH₃	CF ₃ CF ₂ CF ₂	B24
A259	HCC	н .	CH₃	CF ₃ CF ₂ CF ₂	B24

Compd.	R ₉₂	R ₉₃	R ₉₄	R ₉₅	$Q_3$
no.	•				
A260	CH₃CC	н	CH₃	CF ₃ CF ₂ CF ₂	B24
A261	CH₂=CH	Н	CH ₃	CF ₃ CF ₂ CF ₂	B24
A262	CH₂≃CHCH₂	Н	CH₃	CF ₃ CF ₂ CF ₂	B24
A263	CH ₃ SO ₂ N(CH ₃ )	H	CH ₃	CF ₃ CF ₂ CF ₂	B24
A264	(CH₃)₂N	н	CH ₃	CF ₃ CF ₂ CF ₂	B24
A265	(CH ₃ ) ₂ NSO ₂	Н	CH ₃	CF ₃ CF ₂ CF ₂	B24
A266	CICH ₂	н	CH ₃	CF ₃ CF ₂ CF ₂	B24
A267	CH₃SCH₂	Н	CH₃	CF ₃ CF ₂ CF ₂	B24
A268	CH₃SOCH₂	Н	CH ₃	CF ₃ CF ₂ CF ₂	B24
A269	CH ₃ SO ₂ CH ₂	Н	CH₃	CF ₃ CF ₂ CF ₂	B24
A270	н	Н	CH₃	CF ₂ CI	B24
A271	CH₃	Н	CH₃	CF ₂ CI	B24
A272	CH₃CH₂	Н	CH ₃	CF ₂ CI	B24
A273	cyclopropyl	Н	CH ₃	CF ₂ CI	B24
A274	(CH ₃ ) ₃ C	Н	СН₃	CF ₂ Cl	B24
A275	(CH ₃ ) ₂ CH	Н	CH ₃	CF ₂ Cl	B24
A276	$CH_3(CH_2)_2$	н	CH₃	CF ₂ Cl	B24
A277	CH₃OCH₂	Н	CH ₃	CF ₂ Cl	B24
A278	CH ₃ O(CH ₂ ) ₂	Н	CH ₃	CF ₂ CI	B24
A279	Ph	, H	CH ₃	CF₂CI	B24
A280	PhO	Н	CH ₃	CF₂CI	B24
A281	, PhS	Н	CH ₃	CF₂CI	B24
A282	PhSO	н	CH ₃	CF ₂ CI	B24
A283	PhSO₂	Н	СН₃	CF₂CI	B24
A284	CH₃S	Н	CH₃	CF ₂ Cl	B24
A285	CH₃SO	н	CH₃	CF ₂ Cl	B24
A286	CF₃	Н	CH ₃	CF₂CI	B24
A287	F ₂ CH	Н	CH₃	CF₂CI	B24
A288	HCC	. Н	CH ₃	CF ₂ CI	B24
A289	CH₃CC	н	CH ₃	CF₂CI	B24
A290	CH ₂ =CH	н	СНз	CF₂CI	B24
A291	CH ₂ =CHCH ₂	Н	CH₃	CF ₂ CI	B24

Compd.	R ₉₂	R ₉₃	D		•
no.	• •92	1 193	R ₉₄	R ₉₅	$Q_3$
A292	CH₃SO₂N(CH₃)	н	СН₃	CF ₂ CI	DO4
A293	(CH ₃ )₂N	н	CH₃ CH₃	CF ₂ CI	B24
A294	(CH ₃ ) ₂ NSO ₂	 Н	CH₃ CH₃	ĈF₂CI	B24
A295	CICH ₂	н	CH₃ CH₃	CF ₂ CI	B24
A296	CH₃SCH₂	 Н	CH₃ CH₃	CF ₂ CI	B24
A297	CH ₃ SOCH ₂	 Н	CH ₃	CF ₂ Cl	B24
A298	CH ₃ SO ₂ CH ₂	н	CH₃ CH₃		B24
A299	H	н	CH₃ CH₃	CF ₂ CI CHF ₂	B24
A300	CH₃	н	CH₃ CH₃		B24
A301	CH₃CH₂	н	CH ₃	CHF ₂	B24
A302	cyclopropyl	 Н	CH ₃	CHF ₂	B24
A303	(CH₃)₃C	H	CH₃ CH₃	CHF ₂	B24
A304	(CH₃)₂CH	н	CH₃ CH₃	CHF ₂	B24
A305	CH ₃ (CH ₂ ) ₂	н	CH ₃		B24
A306	CH ₃ OCH ₂	 Н	CH₃	CHF ₂	B24 B24
A307	CH₃O(CH₂)₂	 Н	CH₃	CHF ₂	B24
A308	Ph	 Н	CH₃		B24
A309	PhO	н	CH₃	CHF ₂	B24
A310	PhS	н	CH ₃	CHF ₂	B24
A311	PhSO	H	. CH₃	CHF ₂	B24
A312 · ·	PhSO ₂	H	CH₃	CHF ₂	B24
A313	CH₃S	н	CH₃	CHF ₂	B24
A314	CH₃SO	н	CH₃	CHF ₂	B24
A315	. CF ₃	н	CH₃	CHF ₂	B24
A316	F₂CH	Н	CH₃	CHF ₂	B24
A317	HCC	н	CH₃	CHF ₂	B24
A318	CH₃CC	. н	CH₃	CHF ₂	B24
A319	CH₂=CH	Н	CH₃	CHF ₂	B24
A320	CH ₂ =CHCH ₂	Н	CH₃	CHF ₂	B24
A321	CH₃SO₂N(CH₃)	н	CH₃	CHF ₂	B24
A322	(CH₃)₂N	Н	CH₃	CHF ₂	B24
A323	(CH ₃ ) ₂ NSO ₂	н	CH₃	CHF ₂	B24

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Compd.	R ₉₂	R ₉₃	R ₉₄	R ₉₅	$Q_3$
no.					0
A324	CICH ₂	Н	СН₃	CHF ₂	B24
A325	CH₃SCH₂	н	CH₃	CHF ₂	B24
A326	CH₃SOCH₂	н	CH₃	<del>C</del> HF₂	B24
A327	CH₃SO₂CH₂	н	CH₃	CHF₂	B24
A328	Н	Н	CH₃	CCl ₃	B24
A329	CH₃	н	CH₃	CCI ₃	B24
A330	CH₃CH₂	Н	CH₃	CCl ₃	B24
A331	(CH₃)₃C	н	CH₃	CCl ₃	B24
A332	(CH₃)₂CH	Н	CH₃	CCI ₃	B24
A333	cyclopropyl	Н	CH₃	CCI ₃	B24
A334	CH ₃ (CH ₂ ) ₂	н	CH₃	CCl ₃	B24
A335	CH₃OCH₂	Н	CH₃	CCl ₃	B24
A336	CH ₃ O(CH ₂ ) ₂	Н	CH₃	CCl₃	B24
A337	Ph	Н	CH₃	CCl ₃	B24
A338	PhO	Н	CH ₃	CCl ₃	B24
A339	PhS	Н	CH ₃	CCl ₃	B24
A340	PhSO	Н	CH₃	CCl ₃	B24
A341	PhSO ₂	Н	CH ₃	CCl ₃	B24
A342	CH₃S	Н	CH₃	CCl ₃	B24
A343	CH₃SO	Н	CH₃	CCl ₃	B24
A344	CF₃	Н	CH ₃	CCl ₃	B24
A345	F ₂ CH	н	CH ₃	CCl ₃	B24
A346	HCC	Н	CH ₃	CCl ₃	B24
A347	CH₃CC	Н	CH ₃	CCl ₃	B24
A348	CH ₂ =CH	н	CH₃	CCl ₃	B24
A349	CH ₂ =CHCH ₂	Н	CH₃	CCl ₃	B24
A350	CH₃SO₂N(CH₃)	н	CH₃	CCl ₃	B24
A351	(CH ₃ ) ₂ N	Н	CH₃	CCl ₃	B24
A352	(CH ₃ ) ₂ NSO ₂	н	CH₃	CCl ₃	B24
A353	CICH ₂	Н	CH₃	CCl ₃	B24
A354	CH₃SCH₂	Н	CH₃	CCI ₃	B24
A355	CH₃SOCH₂	н	CH₃	CCI ₃	B24

Compd.	$R_{92}$	R ₉₃	R ₉₄	R ₉₅	$Q_3$
no.					
A356	CH₃SO₂CH₂	Н	CH ₃	CCl3	B24
A357	Н	Н	Ph	CF ₃	B24
A358	CH₃	н	Ph	CF ₃	B24
A359	CH₃CH₂	н	Ph	CF ₃	B24
A360	cyclopropyl	Н	Ph	CF ₃	B24
A361	(CH₃)₃C	Н	Ph	CF ₃	B24
A362	(CH ₃ )₂CH	н	Ph	CF ₃	B24
A363	CH ₃ (CH ₂ ) ₂	H	Ph	CF ₃	B24
A364	CH ₃ OCH ₂	Н	Ph	CF ₃	B24
A365	CH ₃ O(CH ₂ ) ₂	Н	Ph	CF ₃	B24
A366	Ph	Н	Ph	CF₃	B24
A367	PhO	н	Ph	CF₃	B24
A368	PhS	Н	Ph	CF₃	B24
A369	PhSO	н	Ph	CF ₃	B24
A370	PhSO₂	Н	Ph	CF ₃	B24
A371	CH₃S	н	Ph	CF ₃	B24
A372	CH₃SO	H	Ph	CF ₃	B24
A373	CF ₃	Н	Ph	CF ₃	B24
A374	F₂CH	н	Ph	CF ₃	B24
A375	HCC	н	Ph	CF₃	B24
A376	CH₃CC	Н	Ph	CF ₃	B24
A377	CH ₂ =CH	н	Ph	CF ₃	B24
A378	CH ₂ =CHCH ₂	н	· Ph	CF₃	B24
A379	CH ₃ SO ₂ N(CH ₃ )	н	Ph	CF ₃	B24
A380	(CH₃)₂N	н	Ph	CF ₃	B24
A381	$(CH_3)_2NSO_2$	Н	Ph	CF ₃	B24
A382	CICH ₂	Н	Ph	CF ₃	B24
A383	CH₃SCH₂	Н	Ph	CF ₃	B24
A384	CH₃SOCH₂	Н	Ph	CF ₃	B24
A385	CH ₃ SO ₂ CH ₂	Н	Ph	CF₃	B24
A386	н	н	Ph	CF ₃ CF ₂	B24
A387	CH₃	Н	Ph	CF₃CF₂	B24

Compd.	R ₉₂	R ₉₃	$R_{94}$	R ₉₅	$Q_3$
no.					
A388	CH₃CH₂	Н	Ρĥ	CF ₃ CF ₂	B24
A389	cyclopropyl	Н	Ph	CF ₃ CF ₂	B24
A390	(CH₃)₃C	Н	Ph	CF ₃ CF ₂	B24
A391	(CH₃) ₂ CH	Н	Ph	CF ₃ CF ₂	B24
A392	CH ₃ (CH ₂ ) ₂	н .	Ph	CF ₃ CF ₂	B24
A393	CH₃OCH₂	H·	Ph	CF ₃ CF ₂	B24
A394	CH ₃ O(CH ₂ ) ₂	Н	Ph	CF ₃ CF ₂	B24
A395	Ph	Н	Ph	CF ₃ CF ₂	B24
A396	PhO	Н	Ph	CF ₃ CF ₂	B24
A397	PhS	Н	Ph	CF ₃ CF ₂	B24
A398	PhSO	Н	Ph	CF ₃ CF ₂	B24
A399	PhSO ₂	н	Ph	CF ₃ CF ₂	B24
A400	CH₃S	Н	Ph	CF ₃ CF ₂	B24
A401	CH₃SO	Н	Ph	CF ₃ CF ₂	B24
A402	CF ₃	Н	Ph	CF ₃ CF ₂	B24
A403	F₂CH	Н	Ph	CF ₃ CF ₂	B24
A404	HCC	Н	Ph	CF ₃ CF ₂	B24
A405	CH₃CC	Н	Ph	CF ₃ CF ₂	B24
A406	CH₂=CH	н	Ph	CF ₃ CF ₂	B24
A407	CH ₂ =CHCH ₂	Н	Ph	CF ₃ CF ₂	B24
A408	CH ₃ SO ₂ N(CH ₃ )	н	Ph	CF ₃ CF ₂	B24
A409	(CH ₃ ) ₂ N	Н	Ph	CF ₃ CF ₂	B24
A410	(CH ₃ ) ₂ NSO ₂	Н	Ph	CF ₃ CF ₂	B24
A411	CICH ₂	Н	Ph	CF ₃ CF ₂	B24
A412	CH₃SCH₂	Н	Ph	CF ₃ CF ₂	B24
A413	CH₃SOCH₂	Н	Ph	CF ₃ CF ₂	B24
A414	CH₃SO₂CH₂	Н	Ph	CF ₃ CF ₂	B24
A415	Н	н	Ph	CF ₃ CF ₂ CF ₂	B24
A416	CH₃	Н	Ph	CF ₃ CF ₂ CF ₂	B24
A417	CH₃CH₂	н	Ph	CF ₃ CF ₂ CF ₂	B24
A418	cyclopropyl	н	Ph	CF ₃ CF ₂ CF ₂	B24
A419	(CH₃)₃C	Н	Ph	CF ₃ CF ₂ CF ₂	B24

Compd.	$R_{92}$	R ₉₃	$R_{94}$	R ₉₅	$Q_3$
no.					
A420	(CH ₃ )₂CH	Н	Ph	CF ₃ CF ₂ CF ₂	B24
A421	CH ₃ (CH ₂ ) ₂	Н	Ph	CF ₃ CF ₂ CF ₂	B24
A422	CH₃OCH₂	Н	Ph	CF ₃ CF ₂ CF ₂	B24
A423	$CH_3O(CH_2)_2$	н	Ph	CF ₃ CF ₂ CF ₂	B24
A424	Ph	н	Ph	CF ₃ CF ₂ CF ₂	B24
A425	PhO	Н	Ph	CF ₃ CF ₂ CF ₂	B24
A426	PhS	Н	Ph	CF ₃ CF ₂ CF ₂	B24
A427	PhSO	Н	Ph	CF ₃ CF ₂ CF ₂	B24
A428	PhSO ₂	Н	Ph	CF ₃ CF ₂ CF ₂	B24
A429	CH₃S	Н	Ph	CF ₃ CF ₂ CF ₂	B24
A430	CH₃SO	Н	Ph	CF ₃ CF ₂ CF ₂	B24
A431	CF ₃	Н	Ph	CF ₃ CF ₂ CF ₂	B24
A432	F₂CH	Н	Ph	CF ₃ CF ₂ CF ₂	B24
A433	HCC	Н	Ph	CF ₃ CF ₂ CF ₂	B24
A434	CH₃CC	н	Ph	CF ₃ CF ₂ CF ₂	B24
A435	CH₂=CH	Н	Ph	CF ₃ CF ₂ CF ₂	B24
A436	CH ₂ =CHCH ₂	н	Ph	CF ₃ CF ₂ CF ₂	B24
A437	CH₃SO₂N(CH₃)	Н	Ph	CF ₃ CF ₂ CF ₂	B24
A438	(CH₃)₂N	н	Ph	CF ₃ CF ₂ CF ₂	B24
A439	(CH ₃ ) ₂ NSO ₂	H	Ph	CF ₃ CF ₂ CF ₂	B24
A440	CICH ₂	н	Ph	CF ₃ CF ₂ CF ₂	B24
A441	CH₃SCH₂	Н	Ph	CF ₃ CF ₂ CF ₂	B24
A442	CH₃SOCH₂	н	Ph	CF ₃ CF ₂ CF ₂	B24
A443	CH₃SO₂CH₂	н	Ph	CF ₃ CF ₂ CF ₂	B24
A444	Н	н	Ph	CF₂CI	B24
A445	CH₃	Н	Ph	CF₂CI	B24
A446	CH₃CH₂	Н	Ph	CF₂CI	B24
A447	cyclopropyl	Н	Ph	CF ₂ CI	B24
A448	(CH₃)₃C	Ή	Ph	CF₂CI	B24
A449	(CH₃)₂CH	н	Ph	CF ₂ CI	B24
A450	CH ₃ (CH ₂ ) ₂	н	Ph	CF ₂ CI	B24
A451	CH₃OCH₂	н	Ph	CF ₂ CI	B24

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Compd.	$R_{92}$	$R_{93}$	$R_{94}$	R ₉₅	$Q_3$
no.					
A452	CH ₃ O(CH ₂ ) ₂	Н	Ph	CF ₂ CI	B24
A453	Ph	Н	Ph	CF ₂ CI	B24
A454	PhO	Н	Ph	ĈF₂CI	B24
A455	PhS	Н	Ph	CF₂CI	B24
A456	PhSO	Н	Ph	CF ₂ CI	B24
A457	PhSO ₂	Н	Ph	CF ₂ CI	B24
A458	CH₃S	Н	Ph	CF ₂ CI	B24
A459	CH₃SO	н	Ph	CF ₂ Cl	B24
A460	CF ₃	Н	Ph .	CF ₂ CI	B24
A461	F₂CH	н	Ph	CF ₂ CI	B24
A462	HCC	Н	Ph	CF ₂ Cl	B24
A463	CH₃CC	Н	Ph	CF ₂ CI	B24
A464	CH ₂ =CH	Н	Ph	CF ₂ CI	B24
· A465	CH ₂ =CHCH ₂	Н	Ph	CF ₂ CI	B24
A466	CH ₃ SO ₂ N(CH ₃ )	Н	Ph	CF ₂ Cl	B24
A467	(CH ₃ ) ₂ N	н	Ph	CF ₂ CI	B24
A468	(CH ₃ ) ₂ NSO ₂	Н	Ph	CF ₂ CI	B24
A469	CICH ₂	н .	Ph	CF ₂ Cl	B24
A470	CH₃SCH₂	н	Ph	CF ₂ CI	B24
A471	CH₃SOCH₂	н	Ph	CF ₂ CI	B24
A472	CH₃SO₂CH₂	Н	·Ph	CF ₂ CI	B24
A473	Н	Н	Ph	CHF ₂	B24
A474	CH₃	Н	Ph	CHF ₂	B24
A475	. CH₃CH₂	н	Ph	CHF ₂	B24
A476	cyclopropyl	Н	Ph	CHF ₂	B24
A477	(CH₃)₃C	н	Ph	CHF ₂	B24
A478	(CH ₃ ) ₂ CH	Н	Ph	CHF ₂	B24
A479	$CH_3(CH_2)_2$	н	Ph	CHF ₂	B24
A480	CH₃OCH₂	Н	Ph	CHF ₂	B24
A481	CH ₃ O(CH ₂ ) ₂	Н	Ph	CHF ₂	B24
A482	Ph	н	Ph	CHF ₂	B24
A483	PhO	Н	Ph	CHF ₂	B24

Compd.	R ₉₂	R ₉₃	R ₉₄	R ₉₅	$Q_3$
no.		•			
A484	PhS	Н	Ph	CHF ₂	B24
A485	PhSO	Н	Ph	CHF ₂	B24
A486	PhSO ₂	Н	Ph	CHF ₂	B24
A487	CH₃S	н	Ph	CHF ₂	B24
A488	CH₃SO	Н	Ph	CHF ₂	B24
A489	CF₃	Н	Ph	CHF ₂	B24
A490	F₂CH	Н	Ph	CHF ₂	B24
A491	HCC	Н	Ph	CHF₂	B24
A492	CH₃CC	н	Ph	CHF ₂	B24
A493	CH₂=CH	н	Ph	CHF ₂	B24
A494	CH ₂ =CHCH ₂	Н	Ph	CHF ₂	B24
A495	CH ₃ SO ₂ N(CH ₃ )	Н	Ph	CHF ₂	B24
A496	(CH₃)₂N	Н	Ph	CHF ₂	B24
A497	(CH ₃ ) ₂ NSO ₂	Н	Ph	CHF ₂	B24
A498	CICH ₂	Н	Ph	CHF ₂	B24
A499	CH₃SCH₂	Н	Ph	CHF ₂	B24
A500	CH₃SOCH₂	Н	Ph	CHF ₂	B24
A501	CH₃SO₂CH₂	. H	Ph	CHF ₂	B24
A502	н	Н	Ph	CCl ₃	B24
A503	CH₃	Н	Ph	CCI ₃	B24
A504	CH₃CH₂	Н	Ph	CCI ₃	B24
A505	cyclopropyl	н	Ph	CCI ₃	B24
A506	(CH₃)₃C	н	Ph	CCl₃	B24
A507	(CH₃)₂CH	Н	Ph	CCI ₃	B24
A508	CH ₃ (CH ₂ ) ₂	Ĥ	Ph	CCI ₃	B24
A509	CH₃OCH₂	н	Ph	CCI ₃	B24
A510	CH ₃ O(CH ₂ ) ₂	н	Ph	CCl ₃	B24
A511	Ph	Н	Ph	CCI ₃	B24
A512	PhO	Н	Ph	CCl ₃	B24
A513	PhS	Н	Ph	CCI ₃	B24
A514	PhSO	н	Ph	CCl₃	B24
A515	PhSO ₂	н	Ph	CCI ₃	B24

Compd.	R ₉₂	$R_{93}$	R ₉₄	R ₉₅	$Q_3$
no.					Ū
A516	CH₃S	н	Ph	CCI ₃	B24
A517	CH₃SO	н	Ph	CCl₃	B24
A518	CF₃	Н	Ph	℃Cl ₃	B24
A519	F₂CH	Н	Ph	CCl ₃	B24
A520	HCC	н	Ph	CCl ₃	B24
A521	CH₃CC	Н	Ph	CCl ₃	B24
A522	CH₂=CH	Н	Ph	CCl ₃	B24
A523	CH ₂ =CHCH ₂	Н	Ph	CCl ₃	B24
A524	CH ₃ SO ₂ N(CH ₃ )	Н	Ph	CCl₃	B24
A525	(CH ₃ ) ₂ N	н	Ph	CCl ₃	B24
A526	(CH ₃ ) ₂ NSO ₂	ŀН	Ph	CCI ₃	B24
A527	CICH ₂	Н	Ph	CCI ₃	B24
A528	CH₃SCH₂	н	Ph	CCl ₃	B24
A529	CH₃SOCH₂	н	Ph	CCl ₃	B24
A530	CH₃SO₂CH₂	н	Ph	CCI ₃	B24
A531	Н	CH₃	Н	CF₃	B24
A532	н	CH ₃ CH ₂	н	CF₃	B24
A533	Н	cyclopropyl	Н	CF ₃	B24
A534	Н	(CH₃)₃CH	Н	CF ₃	B24
A535	Н	(CH₃)₂CH	Н	CF₃	B24
A536	Н	$CH_3(CH_2)_2$	Н	CF ₃	B24
A537	Н	CH₃OCH₂	Н	CF ₃	B24
A538	Н	CH ₃ O(CH ₂ ) ₂	Н	CF ₃	B24
A539	Н	Ph	Н	CF ₃	B24
A540	Н	PhO	Н	ĊF₃	B24
A541	Н	PhS	Н	CF ₃	B24
A542	Н	PhSO	Н	CF ₃	B24
A543	Н	PhSO ₂	Н	CF₃	B24
A544	н	CH₃S	Н	CF₃	B24
A545	н	CH₃SO	Н	CF ₃	B24
A546	Н	CF₃	Н	CF ₃	B24
A547	н	F ₂ CH	Н	CF ₃	B24

Compd.	R ₉₂	$R_{93}$	R ₉₄	R ₉₅	$Q_3$
no.					
A548	Н	HCC	Н	CF₃	B24
A549	Н	CH₃CC	Н	CF ₃	B24
A550	Н	CH ₂ =CH	Н	¯CF ₃	B24
A551	н	CH ₂ =CHCH ₂	Н	CF₃	B24
A552	н	CH ₃ SO ₂ N(CH ₃ )	Н	CF₃	B24
A553	Н	(CH ₃ ) ₂ N	Н	CF₃	B24
A554	Н	(CH ₃ ) ₂ NSO ₂	Н	CF₃	B24
A555	н	CH₃SCH₂	Н	CF ₃	B24
A556	Н	CH ₃ SOCH₂	Н	CF₃	B24
A557	н	CH₃SO₂CH₂	Н	CF ₃	B24
A558	н	CH₃	Н	CF ₃ CF ₂	B24
A559	Н	CH₃CH₂	Н	CF ₃ CF ₂	B24
A560	Н	cyclopropyl	Н	CF ₃ CF ₂	B24
A561	Н	(CH ₃ ) ₃ C	Н	CF ₃ CF ₂	B24
A562	Н	(CH ₃ ) ₂ CH	Н	CF ₃ CF ₂	B24
A563	Н	CH ₃ (CH ₂ ) ₂	Н	CF ₃ CF ₂	B24
A564	H	CH ₃ OCH ₂	Н	CF ₃ CF ₂	B24
A565	Н	CH ₃ O(CH ₂ ) ₂	Н	CF ₃ CF ₂	B24
A566	H	Ph	Н	CF ₃ CF ₂	B24
A567	Н	PhO	Н	CF ₃ CF ₂	B24
A568	Н	PhS	Н	CF ₃ CF ₂	B24
A569	H	PhSO	Н	CF ₃ CF ₂	B24
A570	Н	PhSO ₂	Н	CF ₃ CF ₂	B24
A571	Н	CH₃S	Н	CF ₃ CF ₂	B24
A572	Н	CH₃SO	Н	CF ₃ CF ₂	B24
A573	Н	CF ₃	Н	CF ₃ CF ₂	B24
A574	Н	F ₂ CH	Н	CF ₃ CF ₂	B24
A575	Н	HCC	Н	CF ₃ CF ₂	B24
A576	Н	CH₃CC	H	CF ₃ CF ₂	B24
A577	Н	CH₂=CH	Н	CF ₃ CF ₂	B24
A578	Н	CH ₂ =CHCH ₂	Н	CF ₃ CF ₂	B24
A579	Н	CH₃SO₂N(CH₃)	Н	CF ₃ CF ₂	B24

Compd.	R ₉₂	. R ₉₃	R ₉₄	R ₉₅	$Q_3$
no.					
A580	Н	(CH₃)₂N	Н	CF₃CF₂	B24
A581	Н	$(CH_3)_2NSO_2$	Н	CF₃CF₂	B24
A582	Н	CH₃SCH₂	Н	CF₃CF₂	B24
A583	Н	CH₃SOCH₂	H	CF ₃ CF ₂	B24
A584	Н	CH ₃ SO ₂ CH ₂	н	CF₃CF₂	B24
, A585	Н	CH₃	Н	CF ₃ CF ₂ CF ₂	B24
A586	н	CH₃CH₂	Н	CF ₃ CF ₂ CF ₂	B24
A587	н	cyclopropyl	Н	CF ₃ CF ₂ CF ₂	B24
A588	Н	(CH₃)₃C	н	CF ₃ CF ₂ CF ₂	B24
A589	Н	(CH ₃ )₂CH	н	CF ₃ CF ₂ CF ₂	B24
A590	Н	CH ₃ (CH ₂ ) ₂	н	CF ₃ CF ₂ CF ₂	B24
A591	Н	CH₃OCH₂	н	CF ₃ CF ₂ CF ₂	B24
A592	н	CH ₃ O(CH ₂ ) ₂	Н	CF ₃ CF ₂ CF ₂	B24
A593	н	Ph	Н	CF ₃ CF ₂ CF ₂	B24
A594	н	PhO	Н	CF ₃ CF ₂ CF ₂	B24
A595	н	PhS	Н	CF ₃ CF ₂ CF ₂	B24
A596	Н	PhSO	Н	CF ₃ CF ₂ CF ₂	B24
A597	н	PhSO ₂	Н	CF ₃ CF ₂ CF ₂	B24
A598	Н	CH₃S	Н	CF ₃ CF ₂ CF ₂	B24
A599	H	CH₃SO	Н	CF ₃ CF ₂ CF ₂	B24
A600	Н	CF ₃	Н	CF ₃ CF ₂ CF ₂	B24
A601	Н	F₂CH	Н	CF ₃ CF ₂ CF ₂	B24
A602	н	HCC	Н	CF ₃ CF ₂ CF ₂	B24
A603	Н	CH₃CC	Н	CF ₃ CF ₂ CF ₂	B24
A604	Н	CH ₂ =CH	Н	CF ₃ CF ₂ CF ₂	B24
A605	Н	CH ₂ =CHCH ₂	Н	CF ₃ CF ₂ CF ₂	B24
A606	Н	CH ₃ SO ₂ N(CH ₃ )	Н	CF ₃ CF ₂ CF ₂	B24
A607	Н	(CH₃)₂N	H	CF ₃ CF ₂ CF ₂	B24
A608	Н	(CH ₃ ) ₂ NSO ₂	Н	CF ₃ CF ₂ CF ₂	B24
A609	Н	CH₃SCH₂	Н	CF ₃ CF ₂ CF ₂	B24
A610	н	CH₃SOCH₂	Н	CF ₃ CF ₂ CF ₂	B24
A611	Н	CH₃SO₂CH₂	Н	CF ₃ CF ₂ CF ₂	B24

Compd.	R ₉₂	R ₉₃	R ₉₄	R ₉₅	Q ₃
no.					•
A612	Н	СН₃	Н	CF₂CI	B24
A613	н	CH₃CH₂	Н	CF ₂ CI	B24
A614	н	cyclopropyi	Н	ĈF₂CI	B24
A615	н	(CH₃)₃C	Н	CF ₂ CI	B24
A616	н	(CH₃)₂CH	Н	CF ₂ CI	B24
A617	Н	CH ₃ (CH ₂ ) ₂	Н	CF ₂ CI	B24
A618	Н	CH ₃ OCH ₂	Н	CF₂CI	B24
A619	Н	CH ₃ O(CH ₂ ) ₂	Н	CF ₂ CI	B24
A620	Н	Ph	Н	CF₂CI	B24
A621	н	PhO	Н	CF ₂ Cl	B24
A622	н	PhS	н	CF ₂ CI	B24
A623	н	PhSO	н	CF₂CI	B24
A624	Н	PhSO ₂	Н	CF ₂ CI	B24
A625	н	CH₃S	Н	CF₂CI	B24
A626	н	CH₃SO	Н	CF ₂ Cl	B24
A627	Н	CF₃	Н	CF ₂ CI	B24
A628	Н	F ₂ CH	Н	CF ₂ CI	B24
A629	Н	HCC	Н	CF ₂ CI	B24
A630	H _.	CH₃CC ·	Н	CF ₂ Cl	B24
A631	Н	CH ₂ =CH	Н	CF ₂ CI	B24
A632	Н	CH ₂ =CHCH ₂	Н	CF ₂ Cl	B24
A633	Н	CH₃SO₂N(CH₃)	Н	CF ₂ Cl	B24
A634	Н	(CH₃)₂N	Н	CF ₂ CI	B24
A635	Н	(CH ₃ ) ₂ NSO ₂	Н	CF ₂ CI	B24
A636	Н	CH₃SCH₂	Н	CF ₂ CI	B24
A637	н	CH₃SOCH₂	Н	CF ₂ Cl	B24
A638	н	CH₃SO₂CH₂	Н	CF ₂ Cl	B24
A639	Н	CH₃	Н	CHF ₂	B24
A640	Н	CH₃CH₂	Ή	CHF ₂	B24
A641	Н	cyclopropyl	Н	CHF ₂	B24
A642	Н	(CH₃)₃C	Н	CHF ₂	B24
A643	H	(CH ₃ )₂CH	Н	CHF ₂	B24

Compd.	R ₉₂	R ₉₃ .	$R_{94}$	R ₉₅	$Q_3$
no.					
A644	Н	CH ₃ (CH ₂ ) ₂	Н	CHF ₂	B24
A645	Н	CH ₃ OCH ₂	Н	CHF ₂	B24
A646	н	CH ₃ O(CH ₂ ) ₂	Н	CHF2	B24
A647	Н	Ph	Н	CHF ₂	B24
A648	H	PhO	н	CHF ₂	B24
A649	Н	PhS	Н	CHF ₂	B24
A650	Н	PhSO	Н	CHF ₂	B24
A651	н	PhSO ₂	н	CHF ₂	B24
A652	Н	CH₃S	Н	CHF ₂	B24
A653	н	CH₃SO	Н	CHF₂	B24
A654	Н	CF₃	Н	CHF ₂	B24
A655	Н	F₂CH	Н	CHF₂	B24
A656	н	HCC	Н	CHF ₂	B24
A657	н	CH₃CC	Н	CHF ₂	B24
A658	н	CH ₂ =CH	Н	CHF ₂	B24
A659	Н	CH ₂ =CHCH ₂	Н	CHF ₂	B24
A660	н	CH ₃ SO ₂ N(CH ₃ )	Н	CHF ₂	B24
A661	н	(CH ₃ ) ₂ N	Н	CHF ₂	B24
A662	Н	(CH ₃ ) ₂ NSO ₂	Н	CHF₂	B24
A663	Н	CH₃SCH₂	Н	CHF ₂	B24
A664	н	CH₃SOCH₂	Н	CHF₂	B24
A665	Н	CH₃SO₂CH₂	Н	CHF₂	B24
A666	Н	CH₃	Н	CCl ₃	B24
A667	Н	CH₃CH₂	Н	CCl₃	B24
A668	Н	cyclopropyl	Н	CCl ₃	B24
A669	Н	(CH₃)₃C	Н	CCl ₃	B24
A670	· H	(CH₃)₂CH	Н	CCl ₃	B24
A671	н	CH ₃ (CH ₂ ) ₂	Н	CCI ₃	B24
A672	н	CH₃OCH₂	Н	CCI ₃	B24
A673	н	$CH_3O(CH_2)_2$	Н	CCl₃	B24
A674	н	Ph	Н	CCl₃	B24
A675	Н	PhO	н	CCl ₃	B24

Compd.	$R_{92}$	$R_{93}$	$R_{94}$	$R_{95}$	$Q_3$
no.					
A676	Н	PhS	Н	CCl ₃	B24
A677	Н	PhSO	Н	CCl ₃	B24
A678	Н	PhSO ₂	Н	CCl ₃	B24
A679	Н	CH₃S	Н	CCl ₃	B24
A680	н	CH₃SO	Н	CCl₃	B24
A681	Н	CF ₃	Н	CCl₃	B24
A682	Н	F ₂ CH	Н	CCl₃	B24
A683	Н	HCC	Н	CCl₃	B24
A684	Н	CH₃CC	Н	CCl₃ ·	B24
A685	H	CH₂=CH	Н	CCl₃	B24
A686	н	CH ₂ =CHCH ₂	Н	CCl₃	B24
A687	H	CH ₃ SO ₂ N(CH ₃ )	Н	CCl₃	B24
A688	н	(CH ₃ ) ₂ N	Н	CC <b>l</b> ₃	B24
A689	Н	(CH ₃ ) ₂ NSO ₂	Н	CCl₃	B24
A690	Н	CH₃SCH₂	H	CCl₃	B24
A691	Н	CH₃SOCH₂	Н	CCl₃	B24
A692	Н	CH₃SO₂CH₂	Н	CCl ₃	B24
A693	Н	CH₃	CH ₃	CF₃	B24
A694	Н	CH₃CH₂	CH ₃	CF₃	B24
A695	Н	cyclopropyl	CH₃	CF₃	B24
A696	Н	(CH ₃ ) ₃ C	СН₃	CF₃	B24
A697	Н	(CH ₃ ) ₂ CH	СН₃	CF ₃	B24
A698	Н	$CH_3(CH_2)_2$	CH ₃	CF ₃	B24
A699	н	CH₃OCH₂	CH₃	CF ₃	B24
A700	Н	$CH_3O(CH_2)_2$	CH₃	CF₃	B24
A701	Н	Ph	CH₃	CF₃	B24
A702	H	PhO	CH₃	CF ₃	B24
A703	Н	PhS	СН₃	CF₃	B24
A704	Н	PhSO	СНз	CF₃	B24
A705	н	PhSO ₂	CH₃	CF₃	B24
A706	Н	CH₃S	CH₃	CF₃	B24
A707	<b>H</b>	CH₃SO	CH ₃	CF ₃	B24

Compd.	$R_{92}$	R ₉₃	$R_{94}$	R ₉₅	$Q_3$
no.					
A708	Н	CF₃	СН₃	CF ₃	B24
A709	Н	F₂CH	СН₃	CF₃	B24
A710	Н	HCC	CH ₃	ĈF₃	B24
A711	Н	CH₃CC	CH ₃	CF₃	B24
A712	Н	CH ₂ =CH	CH₃	CF₃	B24
A713	Н	CH₂=CHCH₂	CH₃	CF₃	B24
A714	Н	CH₃SO₂N(CH₃)	CH₃	CF₃	B24
A715	Н	(CH ₃ )₂N	CH₃	CF₃	B24
A716	Н	(CH ₃ ) ₂ NSO ₂	CH ₃	CF₃	B24
A717	Н	CH₃SCH₂	CH₃	CF ₃	B24
A718	Н	CH₃SOCH₂	CH₃	CF₃	B24
A719	Н	CH₃SO₂CH₂	CH₃	CF ₃	B24
A720	Н	CH₃	CH ₃	CF ₃ CF ₂	B24
A721	Н	CH₃CH₂	CH ₃	CF ₃ CF ₂	B24
A722	Н	cyclopropyl	CH₃	CF ₃ CF ₂	B24
A723	Н	(CH₃)₃C	CH ₃	CF ₃ CF ₂	B24
A724	н	(CH ₃ ) ₂ CH	CH ₃	CF ₃ CF ₂	B24
A725	Н	$CH_3(CH_2)_2$	CH ₃	CF ₃ CF ₂	B24
A726	Н	CH ₃ OCH ₂	CH₃	CF ₃ CF ₂	B24
A727	Н	CH ₃ O(CH ₂ ) ₂	CH ₃	CF ₃ CF ₂	B24
A728	Н	Ph	CH₃	CF ₃ CF ₂	B24
A729	Н	PhO	СНз	CF ₃ CF ₂	B24
A730	Н	PhS	CH ₃	CF ₃ CF ₂	B24
A731	Н	PhSO	CH ₃	CF ₃ CF ₂	B24
A732	Н	PhSO₂	CH ₃	CF ₃ CF ₂	B24
A733	Н	CH₃S	CH ₃	CF ₃ CF ₂	B24
A734	Н	CH₃SO	CH ₃	CF ₃ CF ₂	B24
A735	H	CF ₃	CH ₃	CF ₃ CF ₂	B24
A736	Н	F ₂ CH	CH₃	CF ₃ CF ₂	B24
A737	н	HCC	CH₃	CF ₃ CF ₂	B24
A738	н	CH₃CC	CH ₃	CF ₃ CF ₂	B24
A739	Н	CH ₂ =CH	СН₃	CF ₃ CF ₂	B24

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Compd.	R ₉₂	R ₉₃	$R_{94}$	R ₉₅	$Q_3$
no.					
A740	Н	CH ₂ =CHCH ₂	CH₃	CF ₃ CF ₂	B24
A741	Н	CH₃SO₂N(CH₃)	CH₃	CF ₃ CF ₂	B24
A742	·H	$(CH_3)_2N$	CH ₃	CF ₃ CF ₂	B24
A743	Н	(CH ₃ ) ₂ NSO ₂	CH ₃	CF ₃ CF ₂	B24
A744	Н	CH₃SCH₂	CH ₃	CF ₃ CF ₂	B24
A745	Н	CH ₃ SOCH ₂	CH ₃	CF ₃ CF ₂	B24
A746	Н	CH₃SO₂CH₂	CH ₃	CF ₃ CF ₂	B24
A747	H	CH₃	CH₃	CF ₃ CF ₂ CF ₂	B24
A748	Н	CH₃CH₂	CH₃	CF ₃ CF ₂ CF ₂	B24
A749	1 <b>H</b>	cyclopropyl	CH₃	CF ₃ CF ₂ CF ₂	B24
A750	Н	(CH ₃ ) ₃ C	СН₃	CF ₃ CF ₂ CF ₂	B24
A751	н	(CH ₃ ) ₂ CH	CH₃	CF ₃ CF ₂ CF ₂	B24
A752	Н	$CH_3(CH_2)_2$	СН₃	CF ₃ CF ₂ CF ₂	B24
A753	Н	CH₃OCH₂	CH ₃	CF ₃ CF ₂ CF ₂	B24
A754	Н	CH ₃ O(CH ₂ ) ₂	CH ₃	CF ₃ CF ₂ CF ₂	B24
A755	н	Ph	CH₃	CF ₃ CF ₂ CF ₂	B24
A756	Н	PhO	CH ₃	CF ₃ CF ₂ CF ₂	B24
A757	Н	PhS	CH ₃	CF ₃ CF ₂ CF ₂	B24
A758	Н	PhSO	СН₃	CF ₃ CF ₂ CF ₂	B24
A759	н	PhSO ₂	CH ₃	CF ₃ CF ₂ CF ₂	B24
A760	Н	CH₃S	CH₃	CF ₃ CF ₂ CF ₂	B24
A761	Н	CH₃SO	CH ₃	CF ₃ CF ₂ CF ₂	B24
A762	Н	CF ₃	CH ₃	CF ₃ CF ₂ CF ₂	B24
A763	Н	F ₂ CH	CH ₃	CF ₃ CF ₂ CF ₂	B24
A764	Н	HCC	CH ₃	CF ₃ CF ₂ CF ₂	B24
A765	н	CH₃CC	CH₃	CF ₃ CF ₂ CF ₂	B24
A766	Н	CH₂=CH	CH ₃	CF ₃ CF ₂ CF ₂	B24
A767	H	CH ₂ =CHCH ₂	CH₃	CF ₃ CF ₂ CF ₂	B24
A768	Н	CH ₃ SO ₂ N(CH ₃ )	CH₃	CF ₃ CF ₂ CF ₂	B24
A769	Н	(CH₃)₂N	CH₃	CF ₃ CF ₂ CF ₂	B24
A770	Н	(CH ₃ ) ₂ NSO ₂	CH₃	CF ₃ CF ₂ CF ₂	B24
A771	Н	CH₃SCH₂	СН₃	CF ₃ CF ₂ CF ₂	B24

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Compd.	R ₉₂	R ₉₃	$R_{94}$	$R_{95}$	$Q_3$
no.					
A772	Н	CH₃SOCH₂	CH ₃	CF₃CF₂CF₂	B24
A773	н	CH₃SO₂CH₂	CH ₃	CF ₃ CF ₂ CF ₂	B24
A774	Н	CH₃	CH ₃	ĈF₂CI	B24
A775	Н	CH ₃ CH ₂	CH ₃	CF ₂ Cl	B24
A776	Н	cyclopropyl	CH ₃	CF ₂ Cl	B24
A777	Н	(CH ₃ ) ₃ C	CH ₃	CF ₂ CI	B24
A778	Н	(CH ₃ ) ₂ CH	CH ₃	CF ₂ CI	B24
A779	Н	$CH_3(CH_2)_2$	CH ₃	CF ₂ CI	B24
A780	н	CH ₃ OCH ₂	CH₃	CF ₂ CI	B24
A781	н	CH ₃ O(CH ₂ ) ₂	CH ₃	CF ₂ Cl	B24
A782	H	Ph	$CH_3$	CF ₂ CI	B24
A783	н	PhO	CH ₃	CF ₂ CI	B24
A784	Н	PhS	CH ₃	CF ₂ CI	B24
A785	н	PhSO	CH ₃	CF ₂ CI	B24
A786	н	PhSO ₂	CH ₃	CF ₂ Cl	B24
A787	Н	CH₃S	CH ₃	CF ₂ CI	B24
A788	н	CH₃SO	CH₃	CF ₂ CI	B24
A789	н	CF₃	CH ₃	CF₂CI	B24
A790	н .	F₂CH	CH₃	CF₂CI	B24
A791	н	HCC	CH ₃	CF ₂ CI	B24
A792	Н	CH₃CC	CH ₃	CF₂CI	B24
A793	Н	CH₂=CH	CH ₃	CF ₂ CI	B24
A794	н	CH₂=CHCH₂	CH ₃	CF₂CI	B24
A795	Н	CH ₃ SO ₂ N(CH ₃ )	CH ₃	CF ₂ Cl	B24
A796	· H	(CH ₃ ) ₂ N	CH ₃	CF₂CI	B24
A797	Н	(CH3)2NSO2	CH₃	CF₂CI	B24
A798	Н	CH₃SCH₂	CH ₃	CF₂Cl	B24
A799	Н	CH₃SOCH₂	CH₃	CF₂CI	B24
A800	Н	CH₃SO₂CH₂	CH ₃	CF₂CI	B24
A801	Н	СН₃	CH₃	CHF₂	B24
A802	н	CH₃CH₂	CH₃	CHF₂	B24
E08A	<b>H</b>	cyclopropyl	CH ₃	CHF₂	B24

Compd.	R ₉₂	D	D		•
no.	1 192	$R_{93}$	$R_{94}$	R ₉₅	Q ₃
A804	н	(CH₃)₃C	СН₃	CHE	B0.4
A805	н	(CH₃)₂CH	СН₃	CHF₂	B24
A806	. н	CH ₃ (CH ₂ ) ₂	СН₃	CHF ₂	B24
A807	н		СН₃		B24
A808	н		CH₃ CH₃	CHF ₂	B24
A809	н	CH₃O(CH₂)₂ Ph		CHF ₂	B24
A810	н		CH₃	CHF ₂	B24
A811	H	PhO	CH₃	CHF ₂	B24
A812	. Н	PhS	CH₃	CHF ₂	B24
A813		PhSO	CH₃	CHF ₂	B24
	H	PhSO₂	CH₃	CHF ₂	B24
A814	H	CH₃S	CH₃	CHF ₂	B24
A815	H	CH₃SO	CH₃	CHF ₂	B24
A816	Н	CF₃	CH₃	CHF ₂	B24
A817	Н	F₂CH	CH₃	CHF ₂	B24
A818	Н	HCC	CH₃	CHF₂	B24
A819	Н	CH₃CC	CH₃	CHF ₂	B24
A820	Н	CH₂=CH	CH₃	CHF ₂	B24
A821	, Н	CH ₂ =CHCH ₂	CH₃	CHF₂	B24
A822	Н	CH ₃ SO ₂ N(CH ₃ )	CH₃	CHF ₂	B24
A823	Н	(CH₃)₂N	CH₃	CHF₂	B24
A824	Н	(CH ₃ ) ₂ NSO ₂	CH₃	CHF ₂	B24
A825	Н	CH₃SCH₂	CH₃	CHF ₂	B24
A826	Н	CH₃SOCH₂	CH₃	CHF ₂	B24
A827	Н	CH₃SO₂CH₂	CH₃	CHF ₂	B24
A828	Н	CH₃	CH₃	CCI ₃	B24
A829	Н	CH₃CH₂	CH₃ .	CCl ₃	B24
A830	Н	cyclopropyl	CH₃	CCI ₃	B24
A831	Н	(CH ₃ ) ₃ C	CH₃	CCl₃	B24
A832	Н	(CH₃)₂CH	CH₃	CCl₃	B24
A833	Н	CH ₃ (CH ₂ ) ₂	CH₃	CCl3	B24
A834	Н	CH₃OCH₂	CH₃	CCl ₃	B24
A835	Н	CH ₃ O(CH ₂ ) ₂	CH ₃	CCl ₃	B24

Compd.	$R_{92}$	R ₉₃	$R_{94}$	$R_{95}$	$Q_3$	
no.	•					
A836	Н	Ph	CH₃	CCl ₃	B24	
A837	н	PhO	CH₃	CCI ₃	B24	
A838	н	PhS	CH ₃	ĈCl₃	B24	
A839	Н	PhSO	CH ₃	CCl ₃	B24	
A840	Н	PhSO ₂	CH₃	CCl ₃	B24	
A841	Н	CH₃S	CH ₃	CCl ₃	B24	
A842	Н	CH₃SO	CH₃	CCI ₃	B24	
A843	Н	CF ₃	CH ₃	CCI ₃	B24	
A844	Н	F₂CH	CH₃	CCI ₃	B24	
A845	н	HCC	CH₃	CCl₃	B24	
A846	Н	CH₃CC	CH ₃	CCI ₃	B24	
A847	Н	H CH ₂ =CH CH ₃				
A848	Н	CH₂=CHCH₂	CH₃	CCI ₃	B24	
A849	н	CH ₃ SO ₂ N(CH ₃ ) CH ₃		CCl ₃	B24	
A850	н	(CH ₃ ) ₂ N	CH₃	CCl ₃	B24	
A851	н	$(CH_3)_2NSO_2$	CH₃	CCl ₃	B24	
A852	н	CH₃SCH₂	CH₃	CCl ₃	B24	
A853	н	CH₃SOCH₂	CH₃	CCl ₃	B24	
A854	Н	CH₃SO₂CH₂	CH ₃	CCl ₃	B24	
A855	Н	CH₃	Ph	CF ₃	B24	
A856	Н	CH₃CH₂	Ph	CF ₃	B24	
A857	н	(CH ₃ ) ₂ CH	Ph	CF ₃	B24	
A858	н	(CH₃)₂CH	Ph	CF ₃	B24	
A859	Н	cyclopropyl	Ph	CF ₃	B24	
A860	Н	CH ₃ (CH ₂ ) ₂	Ph	CF ₃	B24	
A861	Н	CH₃OCH₂	Ph	CF₃	B24	
A862	Н	CH ₃ O(CH ₂ ) ₂	Ph	CF₃	B24	
A863	н	Ph	Ph	CF ₃	B24	
A864	Н	PhO	Ph	CF₃	B24	
A865	Н	PhS	Ph	CF₃	B24	
A866	Н	PhSO	Ph	CF₃	B24	
A867	, Н	PhSO ₂	Ph	CF ₃	B24	

Compd.	R ₉₂	$R_{93}$	R ₉₄	R ₉₅	Q₃
no.					-
A868	Н	CH₃S	Ph	CF₃	B24
A869	Н	CH₃SO	Ph	CF₃	B24
A870	Н	CF ₃	Ph	~CF ₃	B24
A871	Н	F ₂ CH	Ph	CF ₃	B24
A872	Н	HCC	Ph	CF₃	B24
A873	Н	CH₃CC	Ph	CF₃	B24
A874	Н	CH₂=CH	Ph	CF₃	B24
A875	Н	CH ₂ =CHCH ₂	Ph	CF₃	B24
A876	. Н	CH ₃ SO ₂ N(CH ₃ )	Ph	CF ₃	B24
A877	H	(CH₃)₂N	Ph	CF₃	B24
A878	Н	(CH ₃ ) ₂ NSO ₂	Ph	CF ₃	B24
A879	н	CH₃SCH₂	Ph	CF₃	B24
A880	Н	CH₃SOCH₂	Ph	CF₃	B24
A881	Н	CH₃SO₂CH₂	Ph	CF₃	B24
A882	Н	СН₃	Ph	CF ₃ CF ₂	B24
A883	Н	CH₃CH₂	Ph	CF ₃ CF ₂	B24
A884	Н	cyclopropyl	Ph	CF ₃ CF ₂	B24
A885	Н	(CH ₃ ) ₃ C	Ph	CF ₃ CF ₂	B24
A886	Н	(CH ₃ ) ₂ CH	Ph	CF ₃ CF ₂	B24
A887	Н	$CH_3(CH_2)_2$	Ph	CF ₃ CF ₂	B24
A888	• н	CH ₃ OCH ₂	Ph	CF ₃ CF ₂	B24
A889	н	CH ₃ O(CH ₂ ) ₂	Ph	CF ₃ CF ₂	B24
A890	Н	Ph	Ph	CF₃CF₂	B24
A891	Н	PhO	Ph	CF ₃ CF ₂	B24
A892	н	PhS	Ph	CF ₃ CF ₂	B24
A893	н	PhSO	Ph	CF ₃ CF ₂	B24
A894	H	PhSO ₂	Ph	CF ₃ CF ₂	B24
A895	Н	CH₃S	Ph	CF ₃ CF ₂	B24
A896	н	CH₃SO	Ph	CF ₃ CF ₂	B24
A897	н	CF ₃	Ph	CF ₃ CF ₂	B24
A898	Н	F ₂ CH	Ph	CF ₃ CF ₂	B24
A899	Н	HCC	Ph	CF ₃ CF ₂	B24

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Compd.	R ₉₂	$R_{93}$	$R_{94}$	R ₉₅	$Q_3$
no.					
A900	Н	CH₃CC	Ph	CF ₃ CF ₂	B24
A901	Н	CH₂=CH	Ph	. CF ₃ CF ₂	B24
A902	Н	CH₂=CHCH₂	Ph	ĈF₃CF₂	B24
A903	Н	CH ₃ SO ₂ N(CH ₃ )	Ph	CF ₃ CF ₂	B24
A904	н	(CH₃)₂N	Ph	CF ₃ CF ₂	B24
A905	н	(CH ₃ ) ₂ NSO ₂	Ph	CF ₃ CF ₂	B24
A906	Н	CH₃SCH₂	Ph	CF ₃ CF ₂	B24
A907	н	CH₃SOCH₂	Ph	CF ₃ CF ₂	B24
A908	Н	CH ₃ SO ₂ CH ₂	Ph	CF ₃ CF ₂	B24
A909	н	CH₃	Ph	CF ₃ CF ₂ CF ₂	B24
A910	Н	CH₃CH₂	Ph	CF ₃ CF ₂ CF ₂	B24
A911	Н	cyclopropyl	Ph	CF ₃ CF ₂ CF ₂	B24
A912	Н	(CH ₃ ) ₃ C	Ph	CF ₃ CF ₂ CF ₂	B24
A913	Н	(CH₃)₂CH	Ph	CF ₃ CF ₂ CF ₂	B24
A914	н	$CH_3(CH_2)_2$	Ph	CF ₃ CF ₂ CF ₂	B24
A915	Н	CH₃OCH₂	Ph	CF ₃ CF ₂ CF ₂	B24
A916	н	CH ₃ O(CH ₂ ) ₂	Ph	CF ₃ CF ₂ CF ₂	B24
A917	Н	Ph	Ph	CF ₃ CF ₂ CF ₂	B24
A918	Н	PhO	Ph	CF ₃ CF ₂ CF ₂	B24
A919	H·	PhS	Ph	CF ₃ CF ₂ CF ₂	B24
A920	• Н	PhSO	Ph	CF ₃ CF ₂ CF ₂	B24
A921	Н	PhSO ₂	Ph	CF ₃ CF ₂ CF ₂	B24
A922	Н	CH₃S	Ph	CF ₃ CF ₂ CF ₂	B24
A923	. Н	CH₃SO	Ph	CF ₃ CF ₂ CF ₂	B24
A924	H	CF ₃	Ph	CF ₃ CF ₂ CF ₂	B24
A925	Н	F₂CH	Ph	CF ₃ CF ₂ CF ₂	B24
A926	Н	HCC	Ph	CF ₃ CF ₂ CF ₂	B24
A927	Н	CH₃CC	Ph	CF ₃ CF ₂ CF ₂	B24
A928	Н	CH ₂ =CH	Ph	CF ₃ CF ₂ CF ₂	B24
A929	Н	CH ₂ =CHCH ₂	Ph	CF ₃ CF ₂ CF ₂	B24
A930	н	CH₃SO₂N(CH₃)	Ph	CF ₃ CF ₂ CF ₂	B24
A931	H	(CH ₃ ) ₂ N	Ph	CF ₃ CF ₂ CF ₂	B24

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Compd.	R ₉₂	R ₉₃	R ₉₄	R ₉₅	$Q_3$
no.					
A932	Н	(CH ₃ ) ₂ NSO ₂	Ph	CF ₃ CF ₂ CF ₂	B24
A933	Н	CH₃SCH₂	Ph	CF ₃ CF ₂ CF ₂	B24
A934	Н	CH₃SOCH₂	Ph	CF ₃ CF ₂ CF ₂	B24
A935	Н	CH ₃ SO ₂ CH ₂	Ph	CF ₃ CF ₂ CF ₂	B24
A936	Н	CH₃	Ph	CF₂CI	B24
A937	Н	CH₃CH₂	Ph	CF ₂ CI	B24
A938	Н	cyclopropyl	Ph	CF₂CI	B24
A939	Н	(CH₃)₃C	Ph	CF₂CI	B24
A940	Н	(CH₃)₂CH	Ph	CF₂CÍ	B24
A941	Н	CH ₃ (CH ₂ ) ₂	Ph	CF ₂ CI	B24
A942	н	CH₃OCH₂	Ph	CF₂CI	B24
A943	· н	CH ₃ O(CH ₂ ) ₂	Ph	CF₂CI	B24
A944	Н	Ph	Ph	CF ₂ CI	B24
A945	Н	PhO	Ph	CF ₂ CI	B24
A946	H	PhS	Ph	CF ₂ CI	B24
A947	Н	PhSO	Ph	CF₂CI	B24 B24
A948	Н	PhSO ₂	Ph	CF₂CI	
A949	Н	CH₃S	Ph	CF ₂ CI	B24
A950	Н	CH₃SO	Ph	CF₂CI .	B24
A951	Н	CF ₃	Ph	CF₂CI	B24
A952	Н	F₂CH	Ph	CF ₂ Cl	B24
A953	Н	HCC	Ph	CF₂CI	B24
A954	Н	CH₃CC	Ph	CF ₂ Cl	B24
A955	, , <b>H</b> .	CH ₂ =CH	Ph	CF₂CI	B24
A956	Н	CH ₂ =CHCH ₂	Ph	CF ₂ CI	B24
A957	Н	CH ₃ SO ₂ N(CH ₃ )	Ph	CF₂CI	B24
A958	Н	(CH₃)₂N	Ph	CF ₂ CI	B24
A959	Н	(CH ₃ ) ₂ NSO ₂	Ph	CF₂CI	B24
A960	Н	CH ₃ SCH ₂	Ph	CF₂CI	B24
A961	н	CH₃SOCH₂	Ph	CF₂CI	B24
A962	н	CH₃SO₂CH₂	Ph	CF₂CI	B24
A963	<b>H</b>	CH₃	Ph	CHF₂	B24

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Compd.	$R_{92}$	R ₉₃	$R_{94}$	$R_{95}$	$Q_3$
no.					
A964	Н	CH₃CH₂	Ph	CHF₂	B24
A965	Н	(CH₃)₃C	Ph	CHF ₂	B24
A966	Н	(CH₃)₂CH	Ph	CHF₂	B24
A967	Н	cyclopropyl	Ph	CHF ₂	B24
A968	Н	$CH_3(CH_2)_2$	Ph	CHF ₂	B24
A969	Н	CH₃OCH₂	Ph	CHF₂	B24
A970	Н	$CH_3O(CH_2)_2$	Ph	CHF₂	B24
A971	H	Ph	Ph	CHF ₂	B24
A972	Н	PhO	Ph	CHF ₂	B24
A973	Н	PhS	Ph	CHF ₂	B24
A974	Н	PhSO	Ph	CHF ₂	B24
A975	Н	PhSO ₂	Ph	CHF ₂	B24
A976	Н	CH₃S	Ph	CHF ₂	B24
A977	Н	CH₃SO	Ph	CHF ₂	B24
A978	н	CF ₃	Ph	CHF ₂	B24
A979	Н	F₂CH	Ph	CHF ₂	B24
A980	Н.,	HCC	Ph	CHF ₂	B24
A981	Н	CH₃CC	Ph	CHF ₂	B24
A982	Н	CH ₂ =CH	Ph	CHF ₂	B24
A983	H .	CH ₂ =CHCH ₂	Ph	CHF ₂	B24
A984	Н	CH ₃ SO ₂ N(CH ₃ )	Ph	CHF ₂	B24
A985	н	$(CH_3)_2N$	Ph	CHF ₂	B24
A986	Н	$(CH_3)_2NSO_2$	Ph	CHF ₂	B24
A987	н	CH₃SCH₂	Ph	CHF ₂	B24
A988	Н	CH₃SOCH₂	Ph	CHF ₂	B24
A989	Н	CH ₃ SO ₂ CH ₂	Ph	CHF ₂	B24
A990	Н	CH ₃	Ph	CCI ₃	B24
A991	Н	CH₃CH₂	Ph	CCl₃	B24
A992	Н	(CH ₃ ) ₃ C	Ph	CCl₃	B24
A993	н	(CH₃)₂CH	Ph	CCI ₃	B24
A994	н	cyclopropyl	Ph	CCI ₃	B24
A995	н	$CH_3(CH_2)_2$	Ph	CCl₃	B24

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Compd.	$R_{92}$	$R_{93}$	$R_{94}$	R ₉₅	$Q_3$
no.					
A996	Н	CH₃OCH₂	Ph	CCI ₃	B24
A997	Н	CH ₃ O(CH ₂ ) ₂	Ph	CCl ₃	B24
A998	н .	Ph	Ph	CCl ₃	B24
A999	Н	PhO	Ph	CCI ₃	B24
A1000	Н	PhS	Ph	CCI ₃	B24
A1001	Н	PhSO	Ph	CCI ₃	B24
A1002	Н	PhSO ₂	Ph	CCI ₃	B24
A1003	Н	CH₃S	Ph	CCl₃	B24
A1004	Н	CH₃SO	Ph	CCI ₃	B24
A1005	н	CF ₃	Ph	CCI ₃	B24
A1006	Н	F₂CH	Ph	CCI ₃	B24
A1007	Н	HCC	Ph	CCI ₃	B24
A1008	H	CH₃CC	Ph	CCI ₃	B24
A1009	н	CH ₂ =CH	Ph	CCl ₃	B24
A1010	Н	CH ₂ =CHCH ₂	Ph	CCl ₃	B24
A1011	Н	CH ₃ SO ₂ N(CH ₃ )	Ph	CCl ₃	B24
A1012	Н	$(CH_3)_2N$	Ph	CCl ₃	B24
A1013	H	(CH ₃ ) ₂ NSO ₂	Ph	CCl3	B24
A1014	Н	CH₃SCH₂	Ph	CCl ₃	B24
A1015	Н	CH₃SOCH₂	Ph	CCl ₃	B24
A1016	Н	CH₃SO₂CH₂	Ph	CCl ₃	B24
A1017	F	Н	Η.	CF ₃	B24
A1018	CI	Н	Н	CF ₃	B24
A1019	Br	Н	Н	CF₃	B24
A1020	CN	Н	Н	CF ₃	B24
A1021	CH₃SO₂O	Н	Н	CF ₃	B24
A1022	CH₃O	Н	Н	CF ₃	B24
A1023	CH₂CH₃O	Н	Н	CF ₃	B24
A1024	CH ₂ CH=CH ₂ O	Н	H	CF₃	B24
A1025	HCCCH ₂ O	н	Н	CF ₃	B24
A1026	S-benzyl	Н	Н	CF ₃	B24
A1027	SO ₂ -benzyl	Н	Н	CF ₃	B24

Compd.	R ₉₂	R ₉₃	R ₉₄	R ₉₅	$Q_3$
no.					_
A1028	CICH₂	Н	Н	CF₃	B24
A1029	BrCH₂	Н	Н	CF ₃	B24
A1030	FCH₂	Н	Н	ĈF₃	B24
A1031	CHF₂CH₂	Н	Н	CF ₃	B24
A1032	CF₃CH₂	Н	Н	CF₃	B24
A1033	triazolylmethyl	н	Н	CF₃	B24
A1034	CHCl ₂ CH ₂	н	Н	CF₃	B24
A1035	CICH=CH	H	Н	CF₃	B24
A1036	Cl ₂ C=CH	Н	Н	CF₃	B24
A1037	CF₃CH=CH	н	Н	CF ₃	B24
A1038	CICC	<b>H</b> .	. н	CF₃	B24
A1039	Ph	Н	н	CF ₃	B24
A1040	CH₃	СН₃	Н	CF ₃	B24
A1041	CH₃	ОН	н	CF ₃	B24
A1042	CH₃	F	Н	CF₃	B24
A1043	CH ₃	Cl .	Н	CF₃	B24
A1044	F	CH ₃	Н	CF ₃	B24
A1045	Cl	CH₃	Н	CF₃	B24
A1046	н .	F	Н	CF ₃	B24
A1047	Н	CI	Н	CF ₃	B24
A1048	· H	Br	Н	CF₃	B24
A1049	Н	ОН	Н	CF ₃	B24
A1050	Н	OCH₃	Н	CF₃	B24
A1051	Н	OCHF ₂	Н	CF ₃	B24
A1052	н	OSÖ₂CH₃	Н	CF₃	B24
A1053	н	OSO ₂ CF ₃	Н	CF ₃	B24
A1054	Н	CICH ₂	Н	CF ₃	B24
A1055	Н	BrCH₂	Н	CF ₃	B24
A1056	н	FCH ₂	Н	CF ₃	B24
A1057	Н	CHF₂CH₂	Н	CF ₃	B24
A1058	Н	CF₃CH₂	Н	CF ₃	B24
A1059	Н	triazolylmethyl	Н	CF ₃	B24

Compd.	R ₉₂	$R_{93}$	$R_{94}$	$R_{95}$	$Q_3$
no.					
A1060	Н	CHCl ₂ CH ₂	Н	CF ₃	B24
A1061	Н	CICH=CH	Н	CF ₃	B24
A1062	Н	Cl₂C=CH	Н	CF₃	B24
A1063	Н	CF₃CH=CH	Н	CF₃	B24
A1064	<b>H</b>	CICC	н	CF ₃	B24
A1065	Н	CH₃C(O)	н	CF ₃	B24
A1066	Н	phenyl	Н	CF ₃	B24
A1067	Н	SO ₂ CH ₃	Н	CF ₃	B24
A1068	Н	SO ₂ CF ₃	Н	CF ₃	B24
A1069	· H	CN	Н	CF ₃	B24
A1070	Н	NO ₂	Н	CF₃	B24
A1071	CH₃	н	F	CF ₃	B24
A1072	CH₃	Н	CI	CF ₃	B24
A1073	CH₃	Н	Br	CF ₃	B24
A1074	CH₃	Н	CN	CF₃	B24
A1075	CH₃	Н	CH₃O	CF ₃	B24
A1076	CH₃	Н	CH₃S	CF ₃	B24
A1077	CH₃	`Н.	CH₃SO	CF₃	B24
A1078	CH₃	н	CH ₃ SO ₂	CF ₃	B24

## Table 9a: Compounds of formula Ig:

$\underline{Q}_3$	$\underline{Q}_3$	$\underline{Q}_3$	$\underline{Q}_3$	$Q_3$	$\underline{Q}_{\underline{3}}$	$\underline{Q}_3$	<u>Q</u> ₃	$Q_3$	$Q_3$	$\underline{Q}_3$	$\underline{Q}_3$
B49	B50	B51	B52	B53	B54	B55	B56	B57	B58	B59	B60
B61	B62	B63	B64	B65	B66	B67	B68	B69	B70	B71	B72
B73	B74	B75	B76	B77	B78	B79	B80	B81	B82	B83	B84
B85	B86	B87	B88	B89	B90	B91	B92	B93	B94	B95	B96
B97	B98	B99	B100	B101	B102	B103	B104	B105	B106	B107	B108
B109	B110	B111	B112	B113	B114	B115	B116	B117	B118	B119	B120
B121	B122	B123	B124	B125	B126	B127	B128	B129	B130	B131	B132
B133	B134	B135	B136	B137	B138	B139	B140	B141	B142	B143	B144
B145	B146	B147	B148	B149	B150	B151	B152	B153	B154	B155	B156
B157	B158	B159	B160	B161	B162	B163	B164	B165	B166	B167	B168
B169	B170	B171	B172	B173	B174	B175	B176	B177	B178	B179	B180
B181	B182	B183	B184	B185	B186	B187	B188	B189	B190	B191	B192
B193	B194	B195	B196	B197	B198	B199	B200	B201	B202	B203	B204
B205	B206	B207	B208	B209	B210	B211	B212	B213	B214	B215	B216
B217	B218	B219	B220	B221	B222	B223	B224	B225	B226	B227	B228
B229	B230	B231	B232	B233	B234	B235	B236	B237	B238	B239	B240
B241	B242	B243	B244	B245	B246	B247	B248	B249	B250	B251	B252
B253	B254	B255	B256	B257	B258	B259	B260	B261	B262	B263	B264
B265	B266	B267	B268	B269	B270	B271	B272	B273	B274	B275	B276
B277	B278	B279	B280	B281	B282	B283	B284	B285	B286	B287	B288
B289	B290	B291	B292	B293	B294	B295	B296	B297	B298	B299	B300
B301	B302	B303	B304	B305	B306	B307	B308	B309	B310	B311	B312
B313	B314	B315	B316	B317	B318	B319	B320	B321	B322	B323	B324
B325	B326	B327	B328	B329	B330	B331	B332	B333	B334	B335	B336
B337	B338	B339	B340	B341	B342	B343	B344	B345	B346	B347	B348
B349	B350	B351	B352	B353	B354	B355	B356	B357	B358	B359	B360
B361	B362	B363	B364	B365	B366	B367	B368	B369	B370	B371	B372
B373	B374	B375	B376	B377	B378	B379	B380	B381	B382	B383	B384
B385	B386	B387	B388	B389	B390	B391	B392	B393	B394	B395	B396
B397	B398	B399	B400	B401	B402	B403	B404	B405	B406	B407	B408
B409	B410	B411	B412	B413	B414	B415	B416	B417	B418	B419	B420
B421	B422	B423	B424	B425	B426	B427	B428	B429	B430	B431	B432
B433	B434	B435	B436	B437	B438	B439	B440	B441	B442	B443	B444

•											
<u>Q</u> ₃	<u>Q</u> ₃	<u>Q</u> ₃	$Q_3$	$\underline{Q}_3$	<u>Q</u> 3	<u>Q</u> 3	<u>Q</u> 3	$Q_3$	$Q_3$	$Q_3$	$\underline{Q}_3$
B445					B450	B451	B452	B453	B454	B455	B456
B457		B459	B460	B461	B462	B463	B464	B465	B466	B467	B468
B469	B470	B471	B472	B473	B474	B475	B476	B477	B478	B479	B480
B481	B482	B483	B484	B485	B486	B487	B488	B489	B490	B491	B492
B493	B494	B495	B496	B497	B498	B499	B500	B501	B502	B503	B504
B505	B506	B507	B508	B509	B510	B511	B512	B513	B514	B515	B516
B517	B518	B519	B520	B521	B522	B523	B524	B525	B526	B527	B528
B529	B530	B531	B532	B533	B534	B535	B536	B537	B538	B539	B540
B541	B542	B543	B544	B545	B546	B547	B548	B549	B550	B551	B552
B553	B554	B555	B556	B557	B558	B559	B560	B561	B562	B563	B564
B565	B566	B567	B568	B569	B570	B571	B572	B573	B574	B575	B576
B577	B578	B579	B580	B581	B582	B583	B584	B585	B586	B587	B588
B589	B590	B591	B592	B593	B594	B595	B596	B597	B598	B599	B600
B601	B602	B603	B604	B605	B606	B607	B608	B609	B610	B611	B612
B613	B614	B615	B616	B617	B618	B619	B620	B621	B622	B623	B624
B625	B626	B627	B628	B629	B630	B631	B632	B633	B634	B635	B636
B637	B638	B639	B640	B641	B642	B643	B644	B645	B646	B647	B648
B649	B650	B651	B652	B653	B654	B655	B656	B657	B658	B659	B660
B661	B662	B663	B664	B665	B666	B667	B668	B669	B670	B671	B672
B773	B774	B775	B776	B777	B778	B779	B780	B781	B782	B783	B784
B785	B786	B787	B788	B789	B790	B791	B792	B793	B794	B795	B796
B797	B798	B799	B800	B801	B802	B803	B804	B805	B806	B807	B808
B809	B810	B811	B812	B813	B814	B815	B816	B817	B818	B819	B820
B821	B822	B823	B824	B825	B826	B827	B828	B829	B830	B831	B832
B833	B834	B835	B836	B837	B838	B839	B840	B841	B842	B843	B844
B845	B846	B847	B848	B849	B850	B851	B852	B853	B854	B855	B856
B857	B858	B859	B860	B861	B862	B863	B864	B865	B866	B867	B868
B869	B870	B871	B872	B873	B874	B875	B876	B877	B878	B879	B880
B881	B882	B883	B884	B885	B886	B887	B888	B889	B890	B891	B892
B893	B894	B895	B896	B897	B898	B899	B900	B901	B902	B903	B904
B905	B906	B907	B908	B909	B910	B911	B912	B913	B914	B915	B916
B917	B918	B919	B920	B921	B922	B923	B924	B925	B926	B927	B928
B929	B930	B931	B932	B933	B934	B935	B936	B937	B938	B939	B940
									-		

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 $Q_3$  $Q_3$ **B941** B942 B943 B944 B945 B946 B947 B948 B949 B950 B951 B952 B953 B954 B955 B956 B957 B958 B959 **B960** B961 B962 B963 B964 B965 B966 B967 B968 B970 B969 B971 B972 B973 B974 B975 **B976** B977 B978 B979 B980 B981 B982 B983 B984 B985 ~B986 B987 **B988** B989 B990 B991 B992 B993 B994 B995 B996 B997 B998 B999 B1000 B1001 B1002 B1003 B1004 B1005 B1006 B1007 B1008 B1009 B1010 B1011 B1012 B1013 B1014 B1015 B1016 B1017 B1018 B1019 B1020 B1021 B1022 B1023 B1024 B1025 B1026 B1027 B1028 B1029 B1030 B1031 B1032 B1033 B1034 B1035 B1036 B1037 B1038 B1039 B1040 B1041 B1042 B1043 B1044 B1045 B1046 B1047 B1048 B1049 B1050 B1051 B1052 B1053 B1054 B1055 B1056 B1057 B1058 B1059 B1060 B1061 B1062 B1063 B1064 B1065 B1066 B1067 B1068 B1069 B1070 B1071 B1072 B1073 B1074 B1075 B1076 B1077 B1078 B1079 B1080 B1081 B1082 B1083

Table 10: Compounds of formula Ih:

$$H_3C$$
 $CH_3$ 
 $CH_3$ 
 $CH_3$ 

 $Q_3$  $Q_3$  $Q_3$  $Q_3$ <u>Q</u>3  $Q_3$ <u>Q3</u>  $Q_3$  $Q_3$ <u>Q</u>3  $Q_3$ <u>Q</u>3 **B1 B2 B3 B4 B5 B6 B7 B8** B9 **B10** B11 **B12 B13 B14 B15 B**16 **B18 B20 B17 B19 B21 B22 B23 B24 B25 B26 B27 B28 B29 B30 B31 B32 B33 B34 B35 B36 B37 B38 B39 B40 B41 B42 B43 B46 B44** B45 **B47 B48 B49 B50 B51 B52 B53 B54 B**55 **B56 B57 B58 B59 B60** B61 B62 **B63 B64 B65 B66 B67 B68 B69 B70** B71 **B72 B73 B74 B75 B76 B77 B78 B79 B80 B81 B82 B83 B84 B85 B86 B87 B88 B89 B90 B91 B92 B93 B94 B95 B96 B97 B98 B99** B100 B101 B102 B103 B104 B105 B106 B107 B108 B109 B110 B111 B112 B113 B114 B115 B116 B117 B118 B119 B120 B121 B122 B123 B124 B125 B126 B127 B128 B129 B131 B130 B132 B133 B134 B135 B136 B137 B138 B139 B140 **B141** B142 B143 **B144** 

 $Q_3$  $Q_3$ B145 **B146** B147 **B148** B149 B150 B151 B152 B153 B154 B155 **B156 B157** B158 B159 B160 B161 B162 B163 B164 B165 B166 **B167 B168** B169 B170 B171 B172 B173 B174 B175 **B176** B177 B178 B179 B180 B181 B182 B183 B184 B185 B186 B187 B188 B189 B190 B191 B192 B193 B194 B195 B196 B197 B198 B199 B200 B201 B202 B203 B204 B205 B206 B207 B208 B210 B213 B209 B211 B212 B214 B215 B216 B217 **B218** B219 B220 B221 B222 B223 B224 B225 B226 **B227** B228 B229 B230 B231 B232 B233 B234 B235 B236 B237 B238 B239 B240 B241 B242 B243 **B244** B245 B246 B247 B248 **B249** B250 B251 B252 B253 B254 B255 B256 B257 B258 **B259** B260 B261 B262 **B263** B264 B265 **B266** B267 B268 B269 B270 B271 B272 B273 B274 B275 B276 **B277 B278** B279 B280 B281 B282 B283 B284 B285 B286 **B287 B288 B289** B290 B291 B292 B293 B294 B295 B296 B297 B298 B299 **B300** B301 B302 B303 **B304** B305 B306 **B307 B308 B309** B310 B311 B312 B316 **B313** B314 B315 **B317 B318 B319** B320 B321 B322 **B323 B324** B325 **B326** B327 **B328** B329 **B330 B331** B332 **B333** B334 **B335 B336 B337 B338 B340** B339 **B341 B342 B343 B344 B345 B346 B347 B348 B349** B350 B351 B352 B353 B354 B355 B356 **B357 B358** B359 **B360 B361 B362** B363 **B364 B365 B366 B367 B368 B369** B370 **B371 B372 B373 B374 B375 B376 B377 B378 B379 B380 B381** B382 **B383 B384 B385 B386 B387 B388 B389 B390 B391** B392 **B393 B394 B395** B396 **B397** B398 **B**399 B400 B401 B402 B403 B404 B405 B406 B407 B408 B409 B410 B411 B412 B413 B414 B415 B416 B417 **B418** B419 B420 B421 B422 B423 **B424** B425 B426 B427 B428 B429 B430 B431 B432 **B433 B434** B435 B436 B437 B438 B439 B440 B441 B442 **B443 B444 B445 B446 B447 B448** B449 B450 B451 B452 B453 B454 **B455** B456 B457 B458 B459 **B460** B461 B462 B463 **B464** B465 **B466 B467 B468 B469** B470 B471 B472 B473 B474 B475 **B476 B477 B478 B479** B480 B481 B482 B483 **B484** B485 **B486** B487 **B488** B489 B490 B491 B492 B493 B494 B495 B496 B497 B498 B499 **B500** B501 B502 B503 B504 **B505 B506** B507 B508 B509 B511 B510 B512 B513 B514 B515 B516 B517 B518 B519 B520 B521 B522 B523 B524 B525 B526 B527 B528 B529 B530 .... B531 B532 B533 B534 B535 B536 **B537 B538 B539 B540** 

 $Q_3$  $Q_3$ B541 B542 B543 B544 B545 **B546** B547 B548 **B549** B550 B551 B552 B554 B553 B555 B556 B557 **B558** B559 B560 B561 B562 B563 B564 B565 **B**566 B567 B568 **B569** B571 **B570** B572 B573 B574 B575 B576 **B577 B578** B579 B580 B581 B582 B583 B584 B585 B586 B587 B588 B589 **B590** B591 B592 B593 B594 B595 **B596** B597 **B598 B599** B600 B601 B602 B603 B604 B605 B606 B607 B608 B609 B610 B611 B612 B613 **B614** B615 **B616** B617 B618 B619 B620 B621 B622 B623 B624 B625 B626 B627 B628 B629 B630 B631 B632 B633 B634 B635 B636 B637 B638 B639 B640 B641 B642 B643 **B644** B645 B646 **B647** B648 B649 B650 B651 B652 B653 B654 B655 B656 B657 B658 B659 B660 B661 B662 B663 B664 B665 B666 B667 B668 **B669** B670 B671 B672 **B773 B774** B775 **B776 B777** B778 **B779 B780 B781** B782 **B783 B784** B785 **B786 B787 B788 B789** B790 B791 B792 B793 **B794 B795** B796 **B797 B798** B799 **B800** B801 B802 B803 B804 B805 **B806 B807** B808 B809 **B810** B811 B812 B813 B814 **B815** B816 B817 B819 B818 **B820** B821 B822 B823 B824 B825 B826 B827 **B828** B829 **B831 B830** B832 **B833** B834 B835 **B836 B837 B838** B839 B840 B841 B842 **B843 B844** B845 **B846 B848 B847** B850 B851 **B849** B852 B853 B854 B855 B856 **B857** B858 **B860 B859 B861** B862 B863 **B864 B865** B866 **B867 B868 B869** B870 B₃71 **B872** B873 B874 B875 **B876 B877** B878 **B879 B880** B881 B882 B883 **B884** B885 **B886 B887 B888 B889** B890 B891 B892 B893 B894 B895 B896 B897 **B898** B899 **B900** B901 B902 B903 B904 B905 B906 B908 B907 B909 B910 B911 B912 B913 B914 B915 **B916** B917 B918 B919 B920 B921 B922 B923 B924 B925 B926 **B927 B928** B929 **B930** B931 B932 B933 **B934** B935 **B936 B937 B938 B939 B940** B942 B941 B943 **B944** B945 **B946 B947** B948 **B949** B951 B950 B952 B953 B954 B955 B956 B957 B958 B959 B960 B961 B962 B963 **B964** B965 **B966 B967 B968 B969 B970** B971 B972 B973 **B974 B975 B976 B977 B978** B979 B980 **B981** B982 B983 B984 B985 **B986** B987 **B988 B989** B990 B991 B992 B994 B993 B995 B996 B997 B998 B999 B1000 B1001 B1002 B1003 B1004 B1005 B1006 B1007 B1008 B1009 B1010 B1011 B1012 B1013 B1014 B1015 B1016 B1017 B1018 B1019 B1020 B1021 B1022 B1023 B1024 B1025 B1026 B1027 B1028 B1029 B1030 B1031 B1032 B1033 B1034 B1035 B1036

 $Q_3$  $Q_3$ B1037 B1038 B1039 B1040 B1041 B1042 B1043 B1044 B1045 B1046 B1047 B1048 B1049 B1050 B1051 B1052 B1053 B1054 B1055 B1056 B1057 B1058 B1059 B1060 B1061 B1062 B1063 B1064 B1065 B1066 B1067 B1068 B1069 B1070 B1071 B1072 B1073 B1074 B1075 B1076 B1077 B1078 B1079 B1080 B1081 B1082 B1083

Table 11: Compounds of formula lk:

$Q_3$	$Q_3$	<u>Q</u> 3	$Q_3$	$Q_3$	<u>Q</u> 3	$\underline{Q}_3$	$\underline{Q}_3$	$Q_3$	$Q_3$	<u>Q</u> 3	$Q_3$
B241	B242	B243	B244	B245	B246	B247	B248	B249	B250	B251	B252
B253	B254	B255	B256	B257	B258	B259	B260	B261	B262	B263	B264
B265	B266	B267	B268	B269	B270	B271	B272	B273	B274	B275	B276
B277	B278	B279	B280	B281	B282	B283	B284	B285	B286	B287	B288
B289	B290	B291	B292	B293	B294	B295	B296	B297	B298	B299	B300
B301	B302	B303	B304	B305	B306	B307	B308	B309	B310	B311	B312.
B313	B314	B315	B316	B317	B318	B319	B320	B321	B322	B323	B324
B325	B326	B327	B328	B329	B330	B331	B332	B333	B334	B335	B336
B337	B338	B339	B340	B341	B342	B343	B344	B345	B346	B347	B348
B349	B350	B351	B352	B353	B354	B355	B356	B357	B358	B359	B360
B361	B362	B363	B364	B365	B366	B367	B368	B369	B370	B371	B372
B373	B374	B375	B376	B377	B378	B379	B380	B381	B382	B383	B384
B385	B386	B387	B388	B389	B390	B391	B392	B393	B394	B395	B396
B397	B398	B399	B400	B401	B402	B403	B404	B405	B406	B407	B408
B409	B410	B411	B412	B413	B414	B415	B416	B417	B418	B419	B420
B421	B422	B423	B424	B425	B426	B427	B428	B429	B430	B431	B432
B433	B434	B435	B436	B437	B438	B439	B440	B441	B442	B443	B444
B445	B446	B447	B448	B449	B450	B451	B452	B453	B454	B455	B456
B457	B458	B459	B460	B461	B462	B463	B464	B465	B466	B467	B468
B469	B470	B471	B472	B473	B474	B475	B476	B477	B478	B479	B480
B481	B482	B483	B484	B485	B486	B487	B488	B489	B490	B491	B492
B493	B494	B495	B496	B497	B498	B499	B500	B501	B502	B503	B504
B505	B506	B507	B508	B509	B510	B511	B512	B513	B514	B515	B516
B517	B518	B519	B520	B521	B522	B523	B524	B525	B526	B527	B528
B529	<b>B530</b> .	B531	B532	B533	B534	B535	B536	B537	B538	B539	B540
B541	B542	B543	B544	B545	B546	B547	B548	B549	B550	B551	B552
B553	B554	B555	B556	B557	B558	B559	B560	B561	B562	B563	B564
B565	B566	B567	B568	B569	B570	B571	B572	B573	B574	B575	B576
B577	B578	B579	B580	B581	B582	B583	B584	B585	B586	B587	B588
B589	B590	B591	B592	B593	B594	B595	B596	B597	B598	B599	B600
B601	B602	B603	B604	B605	B606	B607	B608	B609	B610	B611	B612
B613	B614	B615	B616	B617	B618	B619	B620	B621	B622	B623	B624
B625	B626	B627	B628	B629	B630	B631	B632	B633	B634	B635	B636

									-		
$\underline{\mathbf{Q}}_{3}$	$\underline{Q}_{\underline{3}}$	$Q_3$	$\underline{Q}_3$	<u>Q</u> 3	$\underline{Q}_3$	<u>Q</u> 3	<u>Q</u> 3	$Q_3$	$Q_3$	$Q_3$	<u>Q</u> 3
B637	B638	B639	B640	B641	B642	B643	B644	B645	B646	B647	B648
B649	B650	B651	B652	B653	B654	B655	B656	B657	B658	B659	B660
B661	B662	B663	B664	B665	B666	B667	B668	B669	B670	B671	B672
B773	B774	B775	B776	B777	B778	B779	B780	B781	B782	B783	B784
B785	B786	B787	B788	B789	B790	B791	B792	B793	B794	B795	B796
B797	B798	B799	B800	B801	B802	B803	B804	B805	B806	B807	B808
B809	B810	B811	B812	B813	B814	B815	B816	B817	B818	B819	B820
B821	B822	B823	B824	B825	B826	B827	B828	B829	B830	B831	B832
B833	B834	B835	B836	B837	B838	B839	B840	B841	B842	B843	B844
B845	B846	B847	B848	B849	B850	B851	B852	B853	B854	B855	B856
B857	B858	B859	B860	B861	B862	B863	B864	B865	B866	B867	B868
B869	B870	B871	B872	B873	B874	B875	B876	B877	B878	B879	B880
B881	B882	B883	B884	B885	B886	B887	B888	B889	B890	B891	B892
B893	B894	B895	B896	B897	B898	B899	B900	B901	B902	B903	B904
B905	B906	B907	B908	B909	B910	B911	B912	B913	B914	B915	B916
B917	B918	B919	B920	B921	B922	B923	B924	B925	B926	B927	B928
B929	B930	B931	B932	B933	B934	B935	B936	B937	B938	B939	B940
B941	B942	B943	B944	B945	B946	B947	B948	B949	B950	B951	B952
B953	B954	B955	B956	B957	B958	B959	B960	B961	B962	B963	B964
B965	B966	B967	B968	B969	B970	B971	B972	B973	B974	B975	B976
B977	B978	B979	B980	B981	B982	B983	B984	B985	B986	B987	B988
B989	B990	B991	B992	B993	B994	B995	B996	B997	B998	B999	B1000
B1001	B1002	B1003	B1004	B1005	B1006	B1007	B1008	B1009	B1010	B1011	B1012
		B1015									
		B1027									
		B1039									
		B1051									
		B1063									B1072
B1073	B1074	B1075	B1076	B1077	B1078	B1079	B1080	B1081	B1082	B1083	

Table 12: Compounds of formula Im:

O 													
						r Q	(lm)						
				CCI ₃	∕\ _N /	CH3							
-20						_	•	•		•	•		
$Q_3$	$\underline{\mathbf{Q}_3}$	$\underline{\mathbf{Q}_3}$	$Q_3$	$Q_3$	<u>Q</u> ₃	$\underline{\mathbf{Q}_3}$	$\underline{Q}_3$	<u>Q</u> ₃	$Q_3$	$Q_3$	$Q_3$		
B1	B2	В3	B4	B5	B6	B7	B8	B9	B10	B11	B12		
B13	B14	B15	B16	B17	B18	B19	B20	B21	B22	B23	B24		
B25	B26	B27	B28	B29	B30	B31	B32	B33	B34	B35	B36		
B37	B38	B39	B40	B41	B42	B43	B44	B45	B46	B47	B48		
B49	B50	B51	B52	B53	B54	B55	B56	B57	B58	. B59	B60		
B61	B62	B63	B64	B65	B66	B67	B68	B69	B70	B71	B72		
B73	B74	B75	B76	B77	B78	B79	B80	B81	B82	B83	B84		
B85	B86	B87	B88	B89	B90	B91	B92	B93	B94	B95	B96		
B97	B98	B99	B100	B101	B102	B103	B104	B105	B106	B107	B108		
B109	B110	B111	B112	B113	B114	B115	B116	B117	B118	B119	B120		
B121	B122	B123	B124	B125	B126	B127	B128	B129	B130	B131	B132		
B133	B134	B135	B136	B137	B138	B139	B140	B141	B142	B143	B144		
B145	B146	B147	B148	B149	B150	B151	B152	B153	B154	B155	B156		
B157	B158	B159	B160	B161	B162	B163	B164	B165	B166	B167	B168		
B169	B170	B171	B172	B173	B174	B175	B176	B177	B178	B179	B180		
B181	B182	B183	B184	B185	B186	B187	B188	B189	B190	B191	B192		
B193	B194	B195	B196	B197	B198	B199	B200	B201	B202	B203	B204		
B205	B206	B207	B208	B209	B210	B211	B212	B213	B214	B215	B216		
B217	B218	B219	B220	B221	B222	B223	B224	B225	B226	B227	B228		
B229	B230	B231	B232	B233	B234	B235	B236	B237	B238	B239	B240		
B241	B242	B243	B244	B245	B246	B247	B248	B249	B250	B251	B252		
B253	B254	B255	B256	B257	B258	B259	B260	B261	B262	B263	B264		
B265	B266	B267	B268	B269	B270	B271	B272	B273	B274	B275	B276		
B277	B278	B279	B280	B281	B282	B283	B284	B285	B286	B287	B288		
B289	B290	B291	B292	B293	B294	B295	B296	B297	B298	B299	B300		
B301	B302	B303	B304	B305	B306	B307	B308	B309	B310	B311	B312		
B313	B314	B315	B316	B317	B318	B319	B320	B321	B322	B323	B324		

$\underline{Q}_3$	<u>Q</u> ₃	$Q_3$	<u>Q</u> 3	<u>Q</u> 3	<u>Q</u> 3	<u>Q</u> 3	$Q_3$	<u>Q</u> 3	$Q_3$	$Q_3$	$\underline{Q}_3$
B325	B326	B327	B328	B329	B330	B331	B332	B333	B334	B335	B336
B337	B338	B339	B340	B341	B342	B343	B344	B345	B346	B347	B348
B349	B350	B351	B352	B353	B354	B355	B356	B357	B358	B359	B360
B361	B362	B363	B364	B365	B366	B367	B368	B369	B370	B371	B372
B373	B374	B375	B376	B377	B378	B379	B380	B381	B382	B383	B384
B385	B386	B387	· B388	B389	B390	B391	B392	B393	B394	B395	B396
B397	B398	B399	B400	B401	B402	B403	B404	B405	B406	B407	B408
B409	B410	B411	B412	B413	B414	B415	B416	B417	B418	B419	B420
B421	B422	B423	B424	B425	B426	B427	B428	B429	B430	B431	B432
B433	B434	B435	B436	B437	B438	B439	B440	B441	B442	B443	B444
B445	B446	B447	B448	B449	B450	B451	B452	B453	B454	B455	B456
B457	B458	B459	B460	B461	B462	B463	B464	B465	B466	B467	B468
B469	B470	B471	B472	B473	B474	B475	B476	B477	B478	B479	B480
B481	B482	B483	B484	B485	B486	B487	B488	B489	B490	B491	B492
B493	B494	B495	B496	B497	B498	B499	B500	B501	B502	B503	B504
B505	B506	B507	B508	B509	B510	B511	B512	B513	B514	B515	B516
B517	B518	B519	B520	B521	B522	B523	B524	B525	B526	B527	B528
B529	B530	B531	B532	B533	B534	B535	B536	B537	B538	B539	B540
B541	B542	B543	B544	B545	B546	B547	B548	B549	B550	B551	B552
B553	B554	B555	B556	B557	B558	B559	B560	B561	B562	B563	B564
B565	B566	B567	B568	B569	B570	B571	B572	B573	B574	B575	B576
B577	B578	B579	B580	B581	B582	B583	B584	B585	B586	B587	B588
B589	B590	B591	B592	B593	B594	B595	B596	B597	B598	B599	B600
B601	B602	B603	B604	B605	B606	B607	B608	B609	B610	B611	B612
B613	B614	B615	B616	B617	B618	B619	B620	B621	B622	B623	B624
B625	B626	B627	B628	B629	B630	B631	B632	B633	B634	B635	B636
B637	B638	B639	B640	B641	B642	B643	B644	B645	B646	B647	B648
B649	B650	B651	B652	B653	B654	B655	B656	B657	B658	B659	B660
B661	B662	B663	B664	B665	B666	B667	B668	B669	B670	B671	B672
B773	B774	B775	B776	B777	B778	B779	B780	B781	B782	B783	B784
B785	B786	B787	B788	B789	B790	B791	B792	B793	B794	B795	B796
B797	B798	B799	B800	B801	B802	B803	B804	B805	B806	B807	B808
B809	B810	B811	B812	B813	B814	B815	B816	B817	B818	B819	B820

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$Q_3$	$\underline{Q}_{\underline{3}}$	$\underline{Q}_{\underline{3}}$	$\underline{Q}_3$	$Q_3$	$Q_3$	$Q_3$	$Q_3$	$\underline{Q}_3$	$Q_3$	$\underline{\mathbf{Q}}_{3}$	$Q_3$
B821	B822	B823	B824	B825	B826	B827	B828	B829	B830	B831	B832
B833	B834	B835	B836	B837	B838	B839	B840	B841	B842	B843	B844
B845	B846	B847	B848	B849	B850	B851	B852	B853	B854	B855	B856
B857	B858	B859	B860	B861	B862	B863	B864	B865	B866	B867	B868
B869	B870	B871	B872	B873	B874	B875	B876	B877	B878	B879	B880
B881	B882	B883	B884	B885	B886	B887	B888	B889	B890	B891	B892
B893	B894	B895	B896	B897	B898	B899	B900	B901	B902	B903	B904
B905	B906	B907	B908	. B909	B910	B911	B912	B913	B914	B915	B916
B917	B918	B919	B920	B921	B922	B923	B924	B925	B926	B927	B928
B929	B930	B931	B932	B933	B934	B935	B936	B937	B938	B939	B940
B941	B942	B943	B944	B945	B946	B947	B948	B949	B950	B951	B952
B953	B954	B955	B956	B957	B958	B959	B960	B961	B962	B963	B964
B965	B966	B967	B968	B969	B970	B971	B972	B973	B974	B975	B976
B977	B978	B979	B980	B981	B982	B983	B984	B985	B986	B987	B988
B989	B990	B991	B992	B993	B994	B995	B996	B997	B998	B999	B1000
B1001	B1002	B1003	B1004	B1005	B1006	B1007	B1008	B1009	B1010	B1011	B1012
B1013	B1014	B1015	B1016	B1017	B1018	B1019	B1020	B1021	B1022	B1023	B1024
B1025	B1026	B1027	B1028	B1029	B1030	B1031	B1032	B1033	B1034	B1035	B1036
B1037	B1038	B1039	B1040	B1041	B1042	B1043	B1044	B1045	B1046	B1047	B1048
B1049	B1050	B1051	B1052	B1053	B1054	B1055	B1056	B1057	B1058	B1059	B1060
B1061	B1062	B1063	B1064	B1065	B1066	B1067	B1068	B1069	B1070	B1071	B1072
B1073	B1074	B1075	B1076	B1077	B1078	B1079	B1080	B1081	B1082	B1083	

Table 13: Compounds of formula in:

<u>Q</u> 3	$\underline{Q}_3$	$Q_3$	$Q_3$	$Q_3$	$\underline{Q_3}$	$Q_3$	<u>Q</u> 3	<u>Q</u> 3	$\overline{Q_3}$	<u>Q</u> ₃	$\underline{Q}_3$
B25	B26	B27	B28	B29	B30	B31	B32	B33	B34	B35	B36
B37	B38	B39	B40	B41	B42	B43	B44	B45	B46	B47	B48
B49	B50	B51	B52	B53	B54	B55	B56	B57	B58	B59	B60
B61	B62	B63	B64	B65	B66	B67	B68	B69	B70	B71	B72
B73	B74	B75	B76	B77	B78	B79	B80	B81	B82	B83	B84
B85	B86	B87	B88	B89	B90	B91	B92	B93	B94	B95	B96
B97	B98	B99	B100	B101	B102	B103	B104	B105	B106	B107	B108
B109	B110	B111	B112	B113	B114	B115	B116	B117	B118	B119	B120
B121	B122	B123	B124	B125	B126	B127	B128	B129	B130	B131	B132
B133	B134	B135	B136	B137	B138	B139	B140	B141	B142	B143	B144
B145	B146	B147	B148	B149	B150	B151	B152	B153	B154	B155	B156
B157	B158	B159	B160	B161	B162	B163	B164	B165	B166	B167	B168
B169	B170	B171	B172	B173	B174	B175	B176	B177	B178	B179	B180
B181	B182	B183	B184	B185	B186	B187	B188	B189	B190	B191	B192
B193	B194	B195	B196	B197	B198	B199	B200	B201	B202	B203	B204
B205	B206	B207	B208	B209	B210	B211	B212	B213	B214	B215	B216
B217	B218	B219	B220	B221	B222	B223	B224	B225	B226	B227	B228
B229	B230	B231	B232	B233	B234	B235	B236	B237	B238	B239	B240
B241	B242	B243	B244	B245	B246	B247	B248	B249	B250	B251	B252
B253	B254	B255	B256	B257	B258	B259	B260	B261	B262	B263	B264
B265	B266	B267	B268	B269	B270	B271	B272	B273	B274	B275	B276
B277	B278	B279	B280	B281	B282	B283	B284	B285	B286	B287	B288
B289	B290	B291	B292	B293	B294	B295	B296	B297	B298	B299	B300
B301	B302	B303	B304	B305	B306	B307	B308	B309	B310	B311	B312
B313	B314	B315	B316	B317	B318	B319	B320	B321	B322	B323	B324
B325	B326	B327	B328	B329	B330	B331	B332	B333	B334	B335	B336
B337	B338	B339	B340	B341	B342	B343	B344	B345	B346	B347	B348
B349	B350	B351	B352	B353	B354	B355	B356	B357	B358	B359	B360
B361	B362	B363	B364	B365	B366	B367	B368	B369	B370	B371	B372
B373	B374	B375	B376	B377	B378	B379	B380	B381	B382	B383	B384
B385	B386	B387	B388	B389	B390	B391	B392	B393	B394	B395	B396
B397	B398	B399	B400	B401	B402	B403	B404	B405	B406	B407	B408
B409	B410	B411	B412	B413	B414	B415	B416	B417	B418	B419	B420

 $\left( \begin{array}{c} 1 \\ 1 \end{array} \right)$ 

 $Q_3$  $Q_3$  $Q_3$  $Q_3$  $Q_3$  $Q_3$  $Q_3$  $Q_3$  $Q_3$ <u>Q</u>3  $Q_3$ <u>Q</u>3 B428 B429 B421 B422 B423 B424 B425 B426 B427 B430 B431 B432 **B434** B437 B439 **B440 B441** B442 B443 B433 B435 B436 B438 **B444** B445 **B446 B447 B448 B449** B450 B451 B452 B453 B454 B455 **B456** B458 B460 B462 B463 **B464** B465 **B**466 B457 B459 B461 B467 **B468 B469 B470** B471 B472 **B473 B474** B475 **B476 B477 B478** B479 **B480** B481 B482 B483 **B484** B485 B486 **B487 B488** B489 B490 B491 B492 B493 B494 B495 B496 B497 **B498** B499 **B500** B501 B502 B503 B504 **B505** B506 B507 **B508** B511 B512 B513 B514 **B509** B510 B515 B516 B517 B518 B519 B520 B521 B522 B523 B524 B525 B526 B527 B528 B529 B530 B531 B532 B533 B534 B535 B536 B537 B538 B539 B540 B541 B542 **B543 B544 B545** B546 B547 **B548 B549** B550 B551 B552 B553 B554 B555 B556 **B557 B558** B559 **B560** B561 B562 B563 B564 **B565** B566 **B567 B568 B569** B570 **B571** B572 B573 **B574 B575** B576 B580 B577 **B578** B583 B584 B585 B586 B579 B581 B582 B587 B588 **B589** B590 B591 B592 B593 B594 B595 **B596 B597 B598 B599 B600** B601 B602 B603 B604 B605 B606 B607 **B608** B609 B610 B611 B612 B613 B614 B615 B616 B617 B618 B619 B620 B621 B622 B623 B624 B625 B626 B627 B628 B630 B631 B632 B633 B634 B635 B629 B636 B637 B638 B643 B644 B645 B639 **B640** B641 B642 **B646** B647 B648 B649 B650 B651 B652 B653 B654 B655 B656 B657 B658 B659 **B660** B661 B662 **B666 B669** B671 B663 B664 **B665** B667 **B668** B670 B672 **B773 B774** B781 **B775 B776 B777 B778** B779 **B780** B782 **B783 B784** B785 **B786** B791 B793 B795 **B787 B788 B789** B790 B792 **B794 B796 B797 B798 B799 B800** B801 B802 B803 B804 B805 **B806** B807 **B808** B809 **B810** B811 B812 B813 B814 B815 **B816 B817 B818** B819 **B820** B821 B822 B823 B824 B827 B828 B829 B830 B825 B826 B831 **B832 B833** B834 B835 **B836** B837 **B839 B840** B841 B842 B843 **B844** B838 **B845 B846 B847 B848 B849** B850 B851 B852 B853 **B854** B855 **B856** B857 B858 B859 **B860** B861 B862 B863 B864 **B865 B866** B867 **B868 B869 B870 B871** B872 B873 **B874** B875 B876 **B877** B878 B879 **B880** B881 B882 **B884** B883 B885 **B886 B887** B888 **B889** B890 B891 B892 B893 B894 B895 **B896 B897 B898 B899 B900** B901 B902 B903 **B904** B905 B906 **B908 B914** B907 **B909 B910** B911 B912 **B913** B915 **B916** 

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$\underline{Q}_3$	$\underline{Q}_3$	$\underline{Q}_3$	$Q_3$	<u>Q</u> 3	$\underline{Q}_3$	$\underline{Q}_3$	$\underline{Q}_3$	$Q_3$	$\underline{Q}_3$	<u>Q</u> 3	$\underline{Q}_3$
B917	B918	B919	B920	B921	B922	B923	B924	B925	B926	B927	B928
B929	B930	B931	B932	B933	B934	B935	B936	B937	B938	B939	B940
B941	B942	B943	B944	B945	B946	B947	B948	B949	B950	B951	B952
B953	B954	B955	B956	B957	B958	B959	B960	B961	B962	B963	B964
B965	B966	B967	B968	B969	B970	B971	B972	B973	B974	B975	B976
B977	B978	B979	B980	B981	B982	B983	B984	B985	B986	B987	B988
B989	B990	B991	B992	B993	B994	B995	B996	B997	B998	B999	B1000
B1001	B1002	B1003	B1004	B1005	B1006	B1007	B1008	B1009	B1010	B1011	B1012
B1013	B1014	B1015	B1016	B1017	B1018	B1019	B1020	B1021	B1022	B1023	B1024
B1025	B1026	B1027	B1028	B1029	B1030	B1031	B1032	B1033	B1034	B1035	B1036
B1037	B1038	B1039	B1040	B1041	B1042	B1043	B1044	B1045	B1046	B1047	B1048
B1049	B1050	B1051.	B1052	B1053	B1054	B1055	B1056	B1057	B1058	B1059	B1060
B1061	B1062	B1063	B1064	B1065	B1066	B1067	B1068	B1069	B1070	B1071	B1072
B1073	B1074	B1075	B1076	B1077	B1078	B1079	B1080	B1081	B1082	B1083	

Table 14: Compounds of formula lo:

$\underline{Q}_3$	$\underline{Q}_3$	$\underline{Q}_3$	$\underline{Q}_3$	$\underline{Q}_{\underline{3}}$	$\underline{Q}_3$	$\underline{Q}_3$	$\underline{Q_3}$	$Q_3$	<u>Q</u> 3	$Q_3$	$Q_3$
B121	B122	B123	B124	B125	B126	B127	B128	B129	B130	B131	B132
B133	B134	B135	B136	B137	B138	B139	B140	B141	B142	B143	B144
B145	B146	B147	B148	B149	B150	B151	B152	B153	B154	B155	B156
B157	B158	B159	B160	B161	B162	B163	B164	B165	B166	B167	B168
B169	B170	B171	B172	B173	B174	B175	B176	B177	B178	B179	B180
B181	B182	B183	B184	B185	B186	B187	B188	B189	B190	B191	B192
B193	B194	B195	B196	B197	B198	B199	B200	B201	B202	B203	B204
B205	B206	B207	B208	B209	B210	B211	B212	B213	B214	B215	B216
B217	B218	B219	B220	B221	B222	B223	B224	B225	B226	B227	B228
B229	B230	B231	B232	B233	B234	B235	B236	B237	B238	B239	B240
B241	B242	B243	B244	B245	B246	B247	B248	B249	B250	B251	B252
B253	B254	B255	B256	B257	B258	B259	B260	B261	B262	B263	B264
B265	B266	B267	B268	B269	B270	B271	B272	B273	B274	B275	B276
B277	B278	B279	B280	B281	B282	B283	B284	B285	B286	B287	B288
B289	B290	B291	B292	B293	B294	B295	B296	B297	B298	B299	B300
B301	B302	B303	B304	B305	B306	B307	B308	B309	B310	B311	B312
B313	B314	B315	B316	B317	B318	B319	B320	B321	B322	B323	B324
B325	B326	B327	B328	B329	B330	B331	B332	B333	B334	B335	B336
B337	B338	B339	B340	B341	B342	B343	B344	B345	B346	B347	B348
B349	B350	B351	B352	B353	B354	B355	B356	B357	B358	B359	B360
B361	B362	B363	B364	B365	B366	B367	B368	B369	B370	B371	B372
B373	B374	B375	B376	B377	B378	B379	B380	B381	B382	B383	B384
B385	B386	B387	B388	B389	B390	B391	B392	B393	B394	B395	B396
B397	B398	B399	B400	B401	B402	B403	B404	B405	B406	B407	B408
B409	B410	B411	B412	B413	B414	B415	B416	B417	B418	B419	B420
B421	B422	B423	B424	B425	B426	B427	B428	B429	B430	B431	B432
B433	B434	B435	B436	B437	B438	B439	B440	B441	B442	B443	B444
B445	B446	B447	B448	B449	B450	B451	B452	B453	B454	B455	B456
B457	B458	B459	B460	B461	B462	B463	B464	B465	B466	B467	B468
B469	B470	B471	B472	B473	B474	B475	B476	B477	B478	B479	B480
B481	B482	B483	B484	B485	B486	B487	B488	B489	B490	B491	B492
B493	B494	B495	B496	B497	B498	B499	B500	B501	B502	B503	B504
B505	B506	.B507	B508	B509	B510-	B511	B512	B513	B514	B515	B516

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$Q_3$	$Q_3$	$\underline{Q}_3$	$Q_3$	$Q_3$	$\underline{Q}_3$	$Q_3$	$Q_3$	$Q_3$	$\underline{Q}_3$	$Q_3$	$\underline{Q}_3$
B517	B518	B519	B520	B521	B522	B523	B524	B525	B526	B527	B528
B529	B530	B531	B532	B533	B534	B535	B536	B537	B538	B539	B540
B541	B542	B543	B544	B545	B546	B547	B548	B549	B550	B551	B552
B553	B554	B555	B556	B557	B558	B559	B560	B561	B562	B563	B564
B565	B566	B567	B568	B569	B570	B571	B572	B573	B574	B575	B576
B577	B578	B579	B580	B581	B582	B583	B584	B585	B586	B587	B588
B589	B590	B591	B592	B593	B594	B595	B596	B597	B598	B599	B600
B601	B602	B603	B604	B605	B606	B607	B608	B609	B610	B611	B612
B613	B614	B615	B616	B617	B618	B619	B620	B621	B622	B623	B624
B625	B626	B627	B628	B629	B630	B631	B632	B633	B634	B635	B636
B637	B638	B639	B640	B641	B642	B643	B644	B645	B646	B647	B648
B649	B650	B651	B652	B653	B654	B655	B656	B657	B658	B659	B660
B661	B662	B663	B664	B665	B666	B667	B668	B669	B670	B671	B672
B773	B774	B775	B776	B777	B778	B779	B780	B781	B782	B783	B784
B785	B786	B787	B788	B789	B790	B791	B792	B793	B794	B795	B796
B797	B798	B799	B800	B801	B802	B803	B804	B805	B806	B807	B808
B809	B810	B811	B812	B813	B814	B815	B816	B817	B818	B819	B820
B821	B822	B823	B824	B825	B826	B827	B828	B829	B830	B831	B832
B833	B834	B835	B836	B837	B838	B839	B840	B841	B842	B843	B844
B845	B846	B847	B848	B849	B850	B851	B852	B853	B854	B855	B856
B857	B858	B859	B860	B861	B862	B863	B864	B865	B866	B867	B868
B869	B870	B871	B872	B873	B874	B875	B876	B877	B878	B879	B880
B881	B882	B883	B884	B885	B886	B887	B888	B889	B890	B891	B892
B893	B894	B895	B896	B897	B898	B899	B900	B901	B902	B903	B904
B905	B906	B907	B908	B909	B910	B911	B912	B913	B914	B915	B916
B917	B918	B919	B920	B921	B922	B923	B924	B925	B926	B927	B928
B929	B930	B931	B932	B933	B934	B935	B936	B937	B938	B939	B940
B941	B942	B943	B944	B945	B946	B947	B948	B949	B950	B951	B952
B953	B954	B955	B956	B957	B958	B959	B960	B961	B962	B963	B964
B965	B966	B967	B968	B969	B970	B971	B972	B973	B974	B975	B976
B977	B978	B979	B980	B981	B982	B983	B984	B985	B986	B987	B988
B989	B990	B991	B992	B993	B994	B995	B996	B997	B998	B999	B1000
B1001	B1002.	B1.003	B1004	B1005	B1006	B1007	B1008	B1009	B1010	B1011	B1012

 $Q_3$ <u>Q</u>₃  $Q_3$  $Q_3$  $Q_3$  $Q_3$  $Q_3$  $Q_3$  $Q_3$  $Q_3$ B1013 B1014 B1015 B1016 B1017 B1018 B1019 B1020 B1021 B1022 B1023 B1024 B1025 B1026 B1027 B1028 B1029 B1030 B1031 B1032 B1033 B1034 B1035 B1036 B1037 B1038 B1039 B1040 B1041 B1042 B1043 B1044 B1045 B1046 B1047 B1048 B1049 B1050 B1051 B1052 B1053 B1054 B1055 B1056 B1057 B1058 B1059 B1060 B1061 B1062 B1063 B1064 B1065 B1066 B1067 B1068 B1069 B1070 B1071 B1072 B1073 B1074 B1075 B1076 B1077 B1078 B1079 B1080 B1081 B1082 B1083

Table 15: Compounds of formula lp:

$$O$$
 $Q_3$  (lp)
 $CF_3CF_2CF_2$ 
 $O$ 
 $CH_3$ 

<u>Q</u> 3	<u>Q</u> ₃	$Q_3$	<u>Q</u> ₃	<u>Q</u> ₃	$Q_3$	<u>Q</u> 3	$Q_3$	<u>Q</u> ₃	<u>Q</u> ₃	<u>Q</u> ₃	<u>Q</u> ₃
B1	B2	B3	B4	B5	B6	B7	B8	В9	B10	B11	B12
B13	B14	B15	B16	B17	B18	B19	B20	B21	B22	B23	B24
B25	B26	B27	B28	B29	B30	B31	B32	B33	B34	B35	B36
B37	B38	B39	B40	B41	B42	B43	B44	B45	B46	B47	B48
B49	B50	B51	B52	B53	B54	B55	B56	B57	B58	B59	B60
B61	B62	B63 .	B64	B65	B66	B67	B68	B69	B70	B71	B72
B73	B74	B75	B76	B77	B78	B79	B80	B81	B82	B83	B84
B85	B86	B87	B88	B89	B90	B91	B92	B93	B94	B95	B96
B97	B98	B99	B100	B101	B102	B103	B104	B105	B106	B107	B108
B109	B110	B111	B112	B113	B114	B115	B116	B117	B118	B119	B120
B121	B122	B123	B124	B125	B126	B127	B128	B129	B130	B131	B132
B133	B134	B135	B136	B137	B138	B139	B140	B141	B142	B143	B144
B145	B146	B147	B148	B149	B150	B151	B152	B153	B154	B155	B156
B157	B158	B159	B160	B161	B162	B163	B164	B165	B166	B167	B168
B169	B170	B171	B172	B173	B174	B175	B176	B177	B178	B179	B180
B181	B182	B183	B184	B185	B186	B187	B188	B189	B190	B191	B192
B193	B194	B195	B196	B197	B198	B199	B200	B201	B202	B203	B204

•									-		
$Q_3$	$Q_3$	$Q_3$	<u>Q</u> 3	$Q_3$	$\underline{Q}_3$	$\underline{Q}_3$	$\underline{Q}_3$	$Q_3$	$Q_3$	$Q_3$	$Q_3$
B205	B206	B207	B208	B209	B210	B211	B212	B213	B214	B215	B216
B217	B218	B219	B220	B221	B222	B223	B224	B225	B226	B227	B228
B229	B230	B231	B232	B233	B234	B235	B236	B237	B238	B239	B240
B241	B242	B243	B244	B245	B246	B247	B248	B249	B250	B251	B252
B253	B254	B255	B256	B257	B258	B259	B260	B261	B262	B263	B264
B265	B266	B267	B268	B269	B270	B271	B272	B273	B274	B275	B276
B277	B278	B279	B280	B281	B282	B283	B284	B285	B286	B287	B288
B289	B290	B291	B292	B293	B294	B295	B296	B297	B298	B299	B300
B301	B302	B303	B304	B305	B306	B307	B308	B309	B310	B311	B312
B313	B314	B315	B316	B317	B318	B319	B320	B321	B322	B323	B324
B325	B326	B327	B328	B329	B330	B331	B332	B333	B334	B335	B336
B337	B338	B339	B340	B341	B342	B343	B344	B345	B346	B347	B348
B349	B350	B351	B352	B353	B354	B355	B356	B357	B358	B359	B360
B361	B362	B363	B364	B365	B366	B367	B368	B369	B370	B371	B372
B373	B374	B375	B376	B377	B378	B379	B380	B381	B382	B383	B384
B385	B386	B387	B388	B389	B390	B391	B392	B393	B394	B395	B396
B397	B398	B399	B400	B401	B402	B403	B404	B405	B406	B407	B408
B409	B410	B411	B412	B413	B414	B415	B416	B417	B418	B419	B420
B421	B422	B423	B424	B425	B426	B427	B428	B429	B430	B431	B432
B433	B434	B435	B436	B437	B438	B439	B440	B441	B442	B443	B444
B445	B446	B447	B448	B449	B450	B451	B452	B453	B454	B455	B456
B457	B458	B459	B460	B461	B462	B463	B464	B465	B466	B467	B468
B469	B470	B471	B472	B473	B474	B475	B476	B477	B478	B479	B480
B481	B482	B483	B484	B485	B486	B487	B488	B489	B490	B491	B492
B493	B494	B495	B496	B497	B498	B499	B500	B501	B502	B503	B504
B505	B506	B507	B508	B509	B510	B511	B512	B513	B514	B515	B516
B517	B518	B519	B520	B521	B522	B523	B524	B525	B526	B527	B528
B529	B530	B531	B532	B533	B534	B535	B536	B537	B538	B539	B540
B541	B542	B543	B544	B545	B546	B547	B548	B549	B550	B551	B552
B553	B554	B555	B556	B557	B558	B559	B560	B561	B562	B563	B564
B565	B566	B567	B568	B569	B570	B571	B572	B573	B574	B575	B576
B577	B578	B579	B580	B581	B582	B583	B584	B585	B586	B587	B588
B589	B590	B591	B592	B593	B594	B595	B596	B597	B598	B599	B600

<u>Q</u> 3	$\underline{Q}_3$	$\underline{Q}_3$	$\underline{Q}_3$	$Q_3$	$\underline{Q}_3$	$\underline{Q}_3$	<u>Q</u> 3	$Q_3$	$\underline{Q}_3$	<u>Q</u> 3	$\underline{Q}_3$
B601	B602	B603	B604	B605	B606	B607	B608	B609	B610	B611	B612
B613	B614	B615	B616	B617	B618	B619	B620	B621	B622	B623	B624
B625	B626	B627	B628	B629	B630	B631	B632	B633	B634	B635	B636
B637	B638	B639	B640	B641	B642	B643	B644	B645	B646	B647	B648
B649	B650	B651	B652	B653	B654	B655	B656	B657	B658	B659	B660
B661	B662	B663	B664	B665	B666	B667	B668	B669	B670	B671	B672
B773	B774	B775	B776	B777	B778	B779	B780	B781	B782	B783	B784
B785	B786	B787	B788	B789	B790	B791	B792	B793	B794	B795	B796
B797	B798	B799	B800	B801	B802	B803	B804	B805	B806	B807	B808
B809	B810	B811	B812	B813	B814	B815	B816	B817	B818	B819	B820
B821	B822	B823	B824	B825	B826	B827	B828	B829	B830	B831	B832
B833	B834	B835	B836	B837	B838	B839	B840	B841	B842	B843	B844
B845	B846	B847	·B848	B849	B850	B851	B852	B853	B854	B855	B856
B857	B858	B859	B860	B861	B862	B863	B864	B865	B866	B867	B868
B869	B870	B871	B872	B873	B874	B875	B876	B877	B878	B879	B880
B881	B882	B883	B884	B885	B886	B887	B888	B889	B890	B891	B892
B893	B894	B895	B896	B897	B898	B899	B900	B901	B902	B903	B904
B905	B906	B907	B908	B909	B910	B911	B912	B913	B914	B915	B916
B917	B918	B919	B920	B921	B922	B923	B924	B925	B926	B927	B928
B929	B930	B931	B932	B933	B934	B935	B936	B937	B938	B939	B940
B941	B942	B943	B944	B945	B946	B947	B948	B949	B950	B951	B952
B953	B954	B955	B956	B957	B958	B959	B960	B961	B962	B963	B964
B965	B966	B967	B968	B969	B970	B971	B972	B973	B974	B975	B976
B977	B978	B979	B980	B981	B982	B983	B984	B985	B986	B987	B988
B989	B990	B991	B992	B993	B994	B995	B996	B997	B998	B999	B1000
B1001	B1002	B1003	B1004	B1005	B1006	B1007	B1008	B1009	B1010	B1011	B1012
B1013	B1014	B1015	B1016	B1017	B1018	B1019	B1020	B1021	B1022	B1023	B1024
										B1035	
B1037	B1038	B1039	B1040	B1041	B1042	B1043	B1044	B1045	B1046	B1047	B1048
										B1059	
B1061	B1062	B1063	B1064	B1065	B1066	B1067	B1068	B1069	B1070	B1071	B1072
B1073	B1074	B1075	B1076	B1077	B1078	B1079	B1080	B1081	B1082	B1083	

Table 16: Compounds of formula Iq:

$$CF_3$$
  $N$   $Q_3$   $(Iq)$ 

<u>Q</u> ₃	<u>Q</u> ₃	<u>Q</u> ₃	$\underline{Q_3}$	<u>Q</u> ₃	$\underline{Q}_3$	$Q_3$					
B1	B2	ВЗ	B4	B5	B6	B7	B8	B9	B10	B11	B12
B13	B14	B15	B16	B17	B18	B19	B20	B21	B22	B23	B24
B25	B26	B27	B28	B29	B30	B31	B32	B33	B34	B35	B36
B37	B38	B39	B40	B41	B42	B43	B44	B45	B46	B47	B48
B49	B50	B51	B52	B53	B54	B55	B56	B57	B58	B59	B60
B61	B62	B63	B64	B65	B66	B67	B68	B69	B70	B71	B72
B73	B74	B75	B76	B77	B78	B79	B80	B81	B82	B83	B84
B85	B86	B87	B88	B89	B90	B91	B92	B93	B94	B95	B96
B97	B98	B99	B100	B101	B102	B103	B104	B105	B106	B107	B108
B109	B110	B111	B112	B113	B114	B115	B116	B117	B118	B119	B120
B121	B122	B123	B124	B125	B126	B127	B128	B129	B130	B131	B132
B133	B134	B135	B136	B137	B138	B139	B140	B141	B142	B143	B144
B145	B146	B147	B148	B149	B150	B151	B152	B153	B154	B155	B156
B157	B158	B159	B160	B161	B162	B163	B164	B165	B166	B167	B168
B169	B170	B171	B172	B173	B174	B175	B176	B177	B178	B179	B180
B181	B182	B183	B184	B185	B186	B187	B188	B189	B190	B191	B192
B193	B194	B195	B196	B197	B198	B199	B200	B201	B202	B203	B204
B205	B206	B207	B208	B209	B210	B211	B212	B213	B214	B215	B216
B217	B218	B219	B220	B221	B222	B223	B224	B225	B226	B227	B228
B229	B230	B231	B232	B233	B234	B235	B236	B237	B238	B239	B240
B241	B242	B243	B244	B245	B246	B247	B248	B249	B250	B251	B252
B253	B254	B255	B256	B257	B258	B259	B260	B261	B262	B263	B264
B265	B266	B267	B268	B269	B270	B271	B272	B273	B274	B275	B276
B277	B278	B279	B280	B281	B282	B283	B284	B285	B286	B287	B288
B289	B290	B291	B292	B293	B294	B295	B296	B297	B298	B299	B300

 $Q_3$  $Q_3$  $Q_3$  $Q_3$  $Q_3$  $Q_3$ <u>Q</u>3 <u>Q</u>3  $Q_3$ <u>Q</u>3 <u>Q₃</u>  $Q_3$ B303 **B308** B301 B302 B304 B305 **B306 B307** B309 **B310** B311 B312 **B319** B320 B321 B322 B323 B313 **B314** B315 B316 **B317 B318 B324** B325 B326 B327 **B328** B329 **B330 B331** B332 **B333 B334 B335 B336** B342 B344 **B337 B338 B339 B340** B341 **B343** B345 B346 B347 **B348** B354 B356 **B349** B350 **B351** B352 **B353 B355 B357** B358 B359 **B360** B362 **B364 B366 B367 B368 B369 B370 B361 B363** B365 B371 **B372 B374** B380 B381 B382 **B373 B375 B376 B377 B378** B379 **B383** B384 B385 **B386 B387 B388 B389** B390 B391 B392 **B393** B394 B395 B396 **B397 B398** B399 **B400** B401 B402 B403 B404 B405 **B406** B407 B408 B409 B410 B411 B412 B413 **B414 B415** B416 **B417 B418** B419 B420 B421 B422 B423 B424 B425 **B426** B427 B428 B429 B430 B431 B432 B433 **B434** B435 B436 **B437 B438** B439 **B440** B441 B442 **B443 B444 B445 B446 B448** B450 B451 B452 B453 B455 **B447 B449** B454 B456 B457 **B458** B459 B460 B461 B462 B463 B464 B465 **B466 B467** B468 B469 **B470 B471** B472 B473 B474 B475 B476 **B477 B478 B479** B480 B481 B482 B484 **B486** B488 B483 B485 B487 B489 B490 B491 B492 B493 **B494** B495 B496 B497 B498 B499 **B500** B501 B502 B503 B504 B505 **B506** B507 **B508** B509 B510 B511 B512 B513 B514 B515 B516 **B517** B518 B519 B520 B521 B522 B523 B524 **B525** B526 B527 B528 B529 B530 B532 B534 B535 B536 B537 B538 B539 B531 B533 **B540** B542 **B544 B546 B548** B551 B552 B541 B543 B545 **B547 B549** B550 B553 B554 B555 B556 **B558** B559 B560 B561 B562 B563 B564 B557 **B565 B566** B567 B568 B569 B570 B571 B572 B573 B574 B575 **B576 B577 B578** B579 **B580** B581 B582 B583 **B584** B585 B586 B587 **B588** B589 B590 B591 B592 B593 **B594** B595 B596 B597 B598 B599 **B600** B602 B604 B601 B603 B605 B606 B607 B608 B609 B610 B611 B612 B613 B614 B615 B616 B617 B618 B619 B620 B621 B622 B623 B624 B625 B626 B627 B628 B629 B630 B631 B632 B633 B634 B635 B636 B637 B638 B639 B640 B641 B643 B644 B645 B647 B642 B646 B648 B649 B650 B651 B652 B653 B654 B655 B656 B657 B658 B659 **B660** B661 B664 B662 B663 B665 **B666** B667 **B668 B669** B670 B671 B672 **B773 B774 B775 B776 B777 B778 B780 B781** B782 **B783 B784 B779** B785 B786 .... B787 **B788 B789 B794 B795 B796 B790 B791** B792 **B793** 

$Q_3$	$Q_3$	<u>Q</u> 3	$Q_3$	$Q_3$	$Q_3$	$Q_3$	<u>Q</u> 3	<u>Q</u> ₃	$\overline{Q_3}$	<u>Q</u> 3	$\underline{Q}_3$
B797	B798	B799	B800	B801	B802	B803	B804	B805	_	_	_
B809	B810	B811	B812	B813	B814	B815	B816	B817	B818	B819	B820
B821	B822	B823	B824	B825	B826	B827	B828	B829	B830	B831	B832
B833	B834	B835	B836	B837	B838	B839	B840	B841	B842	B843	B844
B845	B846	B847	B848	B849	B850	B851	B852	B853	B854	B855	B856
B857	B858	B859	B860	B861	B862	B863	B864	B865	B866	B867	B868
B869	B870	B871	B872	B873	B874	B875	B876	B877	B878	B879	B880
B881	B882	B883	B884	B885	B886	B887	B888	B889	B890	B891	B892
B893	B894	B895	B896	B897	B898	B899	B900	B901	B902	B903	B904
B905	B906	B907	B908	B909	B910	B911	B912	B913	B914	B915	B916
B917	B918	B919	B920	B921	B922	B923	B924	B925	B926	B927	B928
B929	B930	B931	B932	B933	B934	B935	B936	B937	B938	B939	B940
B941	B942	B943	B944	B945	B946	B947	B948	B949	B950	B951	B952
B953	B954	B955	B956	B957	B958	B959	B960	B961	B962	B963	B964
B965	B966	B967	B968	B969	B970	B971	B972	B973	B974	B975	B976
B977	B978	B979	B980	B981	B982	B983	B984	B985	B986	B987	B988
B989	B990	B991	B992	B993	B994	B995	B996	B997	B998	B999	B1000
B1001	B1002	B1003	B1004	B1005	B1006	B1007	B1008	B1009	B1010	B1011	B1012
B1013	B1014	B1015	B1016	B1017	B1018	B1019	B1020	B1021	B1022	B1023	B1024
B1025	B1026	B1027	B1028	B1029	B1030	B1031	B1032	B1033	B1034	B1035	B1036
B1037	B1038	B1039	B1040	B1041	B1042	B1043	B1044	B1045	B1046	B1047	B1048
		B1051									B1060
		B1063									B1072
B1073	B1074	B1075	B1076	B1077	B1078	B1079	B1080	B1081	B1082	B1083	

Table 17: Compounds of formula Ir:

									-	
$\underline{Q}_{6}$	$\underline{Q}_{\underline{6}}$	$Q_{\underline{6}}$	$\underline{Q}_{6}$	$Q_6$	<u>Q</u> 6	<u>Q</u> 6	$\underline{Q}_{\underline{6}}$	<u>Q</u> 6	$Q_{\underline{6}}$	$Q_6$
C2	СЗ	C4	C5	C6	C7	C8	C9	C10	C11	C12
C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24
C26	C27	C28	C29	C30	C31	C32	C33	C34	C35	C36
C38	C39	C40	C41 .	C42	C43	C44	C45	C46	C47	C48
C50	C51	C52	C53	C54	C55	C56	C57	C58	C59	C60
C62	C63	C64	C65	C66	C67	C68	C69	C70	C71	C72
C74	C75	C76	C77	C78	C79	C80	C81	C82	C83	C84
C86	C87	C88	C89	C90	C91	C92	C93	C94	C95	C96
C98	C99	C100	C101	C102	C103	C104	C105	C106	C107	C108
C110	C111	C112	C113	C114	C115	C116	C117	C118	C119	C120
C122	C123	C124	C125	C126	C127	C128	C129	C130	C131	C132
C134	C135	C136	C137	C138	C139	C140	C141	C142	C143	C144
C146	C147	C148	C149	C150	C151					
	C2 C14 C26 C38 C50 C62 C74 C86 C98 C110 C122 C134	C2 C3 C14 C15 C26 C27 C38 C39 C50 C51 C62 C63 C74 C75 C86 C87 C98 C99 C110 C111 C122 C123 C134 C135	C2       C3       C4         C14       C15       C16         C26       C27       C28         C38       C39       C40         C50       C51       C52         C62       C63       C64         C74       C75       C76         C86       C87       C88         C98       C99       C100         C110       C111       C112         C122       C123       C124         C134       C135       C136	C2         C3         C4         C5           C14         C15         C16         C17           C26         C27         C28         C29           C38         C39         C40         C41           C50         C51         C52         C53           C62         C63         C64         C65           C74         C75         C76         C77           C86         C87         C88         C89           C98         C99         C100         C101           C110         C111         C112         C113           C122         C123         C124         C125           C134         C135         C136         C137	C2         C3         C4         C5         C6           C14         C15         C16         C17         C18           C26         C27         C28         C29         C30           C38         C39         C40         C41         C42           C50         C51         C52         C53         C54           C62         C63         C64         C65         C66           C74         C75         C76         C77         C78           C86         C87         C88         C89         C90           C98         C99         C100         C101         C102           C110         C111         C112         C113         C114           C122         C123         C124         C125         C126           C134         C135         C136         C137         C138	C2         C3         C4         C5         C6         C7           C14         C15         C16         C17         C18         C19           C26         C27         C28         C29         C30         C31           C38         C39         C40         C41         C42         C43           C50         C51         C52         C53         C54         C55           C62         C63         C64         C65         C66         C67           C74         C75         C76         C77         C78         C79           C86         C87         C88         C89         C90         C91           C98         C99         C100         C101         C102         C103           C110         C111         C112         C113         C114         C115           C122         C123         C124         C125         C126         C127	C2         C3         C4         C5         C6         C7         C8           C14         C15         C16         C17         C18         C19         C20           C26         C27         C28         C29         C30         C31         C32           C38         C39         C40         C41         C42         C43         C44           C50         C51         C52         C53         C54         C55         C56           C62         C63         C64         C65         C66         C67         C68           C74         C75         C76         C77         C78         C79         C80           C86         C87         C88         C89         C90         C91         C92           C98         C99         C100         C101         C102         C103         C104           C110         C111         C112         C113         C114         C115         C116           C122         C123         C124         C125         C126         C127         C128           C134         C135         C136         C137         C138         C139         C140	C2         C3         C4         C5         C6         C7         C8         C9           C14         C15         C16         C17         C18         C19         C20         C21           C26         C27         C28         C29         C30         C31         C32         C33           C38         C39         C40         C41         C42         C43         C44         C45           C50         C51         C52         C53         C54         C55         C56         C57           C62         C63         C64         C65         C66         C67         C68         C69           C74         C75         C76         C77         C78         C79         C80         C81           C86         C87         C88         C89         C90         C91         C92         C93           C98         C99         C100         C101         C102         C103         C104         C105           C110         C111         C112         C113         C114         C115         C116         C117           C122         C123         C124         C125         C126         C127         C128	C2         C3         C4         C5         C6         C7         C8         C9         C10           C14         C15         C16         C17         C18         C19         C20         C21         C22           C26         C27         C28         C29         C30         C31         C32         C33         C34           C38         C39         C40         C41         C42         C43         C44         C45         C46           C50         C51         C52         C53         C54         C55         C56         C57         C58           C62         C63         C64         C65         C66         C67         C68         C69         C70           C74         C75         C76         C77         C78         C79         C80         C81         C82           C86         C87         C88         C89         C90         C91         C92         C93         C94           C98         C99         C100         C101         C102         C103         C104         C105         C106           C110         C111         C112         C113         C114         C115         C116 <t< td=""><td>C2         C3         C4         C5         C6         C7         C8         C9         C10         C11           C14         C15         C16         C17         C18         C19         C20         C21         C22         C23           C26         C27         C28         C29         C30         C31         C32         C33         C34         C35           C38         C39         C40         C41         C42         C43         C44         C45         C46         C47           C50         C51         C52         C53         C54         C55         C56         C57         C58         C59           C62         C63         C64         C65         C66         C67         C68         C69         C70         C71           C74         C75         C76         C77         C78         C79         C80         C81         C82         C83           C86         C87         C88         C89         C90         C91         C92         C93         C94         C95           C98         C99         C100         C101         C102         C103         C104         C105         C106         C10</td></t<>	C2         C3         C4         C5         C6         C7         C8         C9         C10         C11           C14         C15         C16         C17         C18         C19         C20         C21         C22         C23           C26         C27         C28         C29         C30         C31         C32         C33         C34         C35           C38         C39         C40         C41         C42         C43         C44         C45         C46         C47           C50         C51         C52         C53         C54         C55         C56         C57         C58         C59           C62         C63         C64         C65         C66         C67         C68         C69         C70         C71           C74         C75         C76         C77         C78         C79         C80         C81         C82         C83           C86         C87         C88         C89         C90         C91         C92         C93         C94         C95           C98         C99         C100         C101         C102         C103         C104         C105         C106         C10

Table 18: Compounds of formula is:

$$Q_7$$
 (Is)

 $Q_7$  $Q_{7}$  $Q_7$  $Q_{7}$  $Q_7$  $Q_{Z}$  $Q_{z}$  $Q_{Z}$  $Q_7$  $Q_{z}$  $Q_{Z}$  $Q_{Z}$ D1 D2 D4 D5 D6 **D7 D8** D9 D10 D11 D12 D3 D13 D14 D15 D16 D17 D18 D19 D20 D21 D22 D23 D24 D25 D29 D34 D26 D27 D28 D30 D31 D32 D33 D35 D36 D37 **D38** D39 D41 **D43 D48 D40** D42 **D44 D45** D46 D47 D49 **D50** D51 **D52 D53 D54 D55 D56 D57 D58** D59 **D60** D61 D62 D63 **D64 D65** D66 D67 D68 D69 D70 D71 **D72** D73 D74 D75 D76 **D77** D78 D79 **D80** D81 D82 D83 D84 D85 D86 D88 D89 D92 D94 D95 **D87** D90 D91 D93 D96 D97 **D98** D99 D100 D101 D102 D103 D104 D105 D106 D107 D108 D109 D110 D111 D112 D113 D114 D115 D116 D117 D118 D119 D120

Table 19: Compounds of formula lv:

Compd.	Ð
no.	R ₇₅
E1	CH₂OCH₃
E2	CH ₂ OC ₂ H ₅
E3	CH ₂ O-n-propyl
E4	CH₂O-isopropyl
E5	CH₂O-n-butyl
E6	CH₂O-isobutyI
E7	CH₂O-tert-butyl
E8	(CH ₂ ) ₂ OCH ₃
E9	(CH2)2O-ethyl
E10	(CH ₂ ) ₂ O-n-propyl
E11	(CH ₂ ) ₂ O-isopropyt
E12	(CH ₂ ) ₂ O-n-butyl
E13	(CH₂)₂O-isobutyl
E14	(CH ₂ ) ₂ O-tert-butyl
E15	(CH ₂ ) ₂ O(CH ₂ ) ₂ OCH ₃
E16	(CH ₂ ) ₂ O(CH ₂ ) ₂ OCH ₃
E17	C₂H₅

Table 20: Physical data for Tables 5 to 19 (figures = m.p. in  $^{\circ}$ C):

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Compound	Phys. data	Compound	Phys. data	Compound	Phys. data
A2	150-151	C46	159-161	A2-B1058	88-89
A3	148-149	C91	141-143	A2-B1066	viscous
A4	143-144	C146	99-101	A2-B1067	resinous oil
<b>A5</b>	81-82	C149	148-150	A2-B1069	oil
A6	148-150	A2-B1	90-92	A2-B1069 .	viscous oil
<b>A7</b>	105-106	A2-B68	120-121	A8-B1	97-98
A8	123-124	A2-B2	resin	A7-B1	oil
<b>A9</b>	73-74	A2-B90	resin	A3-B1	42-44
A10	165-167	A2-B93	95-96	A94-B1	57-58
A15	164-166	A2-B46	61-62 cis-rac	A66-B24	80-82
A17	99-100	A2-B46	83-84 trans-rac	A64-B1	49-51
A26	143-144	A2-B91	resin	A154-B1	94-95
A27	107-108	A2-B1081	oil	A6-B1	123-124
A29	173-174	A2-B1082	resin	A6-B24	oil
A30	178-181	A2-B1083	resin	A34-B1	53-54
A31	209-210	A2-B29	87-88	A2-B25	oil
A32	145-146	A2-B73	resin	A2-B925	oil
A34	170-171	A2-B95	106-107	E8	55-56
A64	134-135	A2-B31	151-153	E17	99-101
A94	134-135	A2-B75	amorphous		
A154	108-110	A2-B24	oil		
B1057	166-167	A2-B5	resin		•
B1058	crystalline	A2-C91	resin		
B1061	crystalline	A2-C146	oil		
B1063	crystalline	A2-B112	resin		
B1065	oil	A2-D140	oil		
B1066	150-152	A2-B1057	amorphous		
B1067	122-123	A2-B1063	oil		
B1069	117-118	A2-B1061	oil		
B1070	crystalline	A2-B133	oil		

Compounds of formulae 2.1 and 2.3 to 2.13.c are known by the names imazamox. imazethapyr, imazaquin, imazapyr, dimethenamid, atrazine, terbuthylazine, simazine, terbutym, cyanazine, ametryn, terbumeton, prohexadione calcium, sethoxydim, clethodim, tepraloxydim, flumetsulam, metosulam, pyridate, bromoxynil, ioxynil, sulcotrione, carfentrazone, sulfentrazone, isoxaflutole, glufosinate, primisulfuron, prosulfuron, rimsulfuron, halosulfuron, nicosulfuron, ethoxysulfuron, flazasulfuron and thifensulfuron and are described in the Pesticide Manual, eleventh ed., British Crop Protection Council, 1997 under the entry numbers 412, 415, 414, 413, 240, 34, 692, 651, 693, 168, 20, 691, 595, 648, 146, 49, 339, 495, 626, 88, 425, 664, 112, 665, 436, 382, 589, 613, 644, 389, 519, 287, 325 and 704. The compound of formula 2.13 wherein  $Y_1$ ,  $Y_3$  and  $Y_4$  are methine,  $Y_2$  is C-I,  $R_{74}$  is COOMe, Y₅ is nitrogen, Y₆ is methyl and Y₇ is methoxy is known by the name iodosulfuron (especially the sodium salt) from AGROW No. 296, 16th January 1998, page 22. The compound of formula 2.13 wherein  $Y_1$ ,  $Y_2$ ,  $Y_3$  and  $Y_4$  are methine,  $R_{74}$  is trifluoromethyl,  $Y_5$  is nitrogen, Y₆ is trifluoromethyl and Y₇ is methoxy is known by the name tritosulfuron and described in DE-A-40 38 430. The compound of formula 2.13 wherein  $Y_1$  is NH-CHO,  $Y_2$ ,  $Y_3$ and Y₄ are methine, R₇₄ is CONMe₂, Y₅ is methine and Y₆ and Y₇ are methoxy is described, for example, in WO 95/29899.

The S enantiomer of the compound of formula 2.12 is registered under the CAS-Reg. No. [35597-44-5]. The compound of the general formula 2.2, aRS,1'S(-)N-(1'-methyl-2'-methoxyethyl)-N-chloroacetyl-2-ethyl-6-methylaniline, and a compound of the general formula 2.3, (1S,aRS)-2-chloro-N-(2,4-dimethyl-3-thienyl)-N-(2-methoxy-1-methylethyl)-acetamide, are described, for example, in WO 97/34485. The compound of formula 2.9 wherein  $R_{69}$  is NO₂ is known by the name mesotrione and is described, for example, in US-A-5 006 158. The compound of formula 2.6 wherein  $R_{62}$  is ethoxy,  $R_{63}$  is fluorine, Y is methine,  $R_{64}$  is methoxycarbonyl,  $R_{65}$  is hydrogen and  $R_{66}$  is chlorine is known by the name cloransulam, for example from AGROW No. 261, 2nd August 1996, page 21. The compound of formula 2.6 wherein  $R_{62}$  is methoxy,  $R_{63}$  is hydrogen, Y is C-F,  $R_{64}$  is fluorine,  $R_{65}$  is hydrogen and  $R_{66}$  is fluorine, is known by the name florasulam and described in US-A-5 163 995.

Furthermore, the following compounds of the composition according to the invention are described in the Pesticide Manual, eleventh ed., British Crop Protection Council, 1997:

Compound of formula (name)

Pesticide Manual eleventh ed., Entry No.:

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Compound of formula (name)	Pesticide Manual eleventh ed., Entry No.:
2.15 (aclonifen)	8
2.16 (glyphosate)	383
2.17 (bentazone)	65
2.18 (pendimethalin)	557
2.19 (dicamba)	210
2.20 (butylate)	100 ,
2.22 (clomazone)	150
2.23 (2,4-D)	192
2.24 (flumiclorac)	340
2.25 (fluthiacet-methyl)	359
2.26 (flurtamone)	356
2.27 (flumioxazin)	341
2.28 (paraquat)	550
2.29 (azafenidin)	37
2.30 (fluthiamid)	51
2.33 (sulfosate)	383
2.34 (asulam)	33
2.35 (norflurazon)	526
2.36 (terbacil)	689
2.37 (thiazopyr)	702
2.38 (dithiopyr)	259
2.39 (hexazinone)	400
2.40 (diuron)	260
2.41 (MCPA)	455
2.42 (mecoprop)	459
2.43 (tebuthiuron)	683

The compound of formula 2.7 wherein  $R_{67}$  is hydrogen and its preparation are described in US-A-3 790 571; the compound of formula 2.6 wherein  $R_{62}$  is ethoxy, Z is nitrogen,  $R_{63}$  is fluorine,  $R_{64}$  is chlorine,  $R_{65}$  is hydrogen and  $R_{66}$  is chlorine is described in US-A-5 498 773. The compound of formula 2.21 and its preparation are described in US-A-5 183 492; the compound of formula 2.22 is described by the name isoxachlortole in AGROW No. 296, 16th January 1998, page 22. The compound of formula 2.31 is described under the name

fentrazamide in The 1997 British Crop Protection Conference - Weeds, Conference Proceedings Vol. 1, 2-8, pages 67 to 72; the compound of formula 2.32 is described under the name JV 485 (isoxapropazol) in The 1997 British Crop Protection Conference - Weeds, Conference Proceedings Vol. 1, 3A-2, pages 93 to 98. The compound of formula 2.44 is known by the name pethoxamid and is described, for example in EP-Ā-0 206 251. The compound of formula 2.45 is known by the name procarbazone and is described, for example, in EP-A-0 507 171; the compound of formula 2.46 is known by the name fluazolate and is described, for example, in US-A-5 530 126. The compound of formula 2.47 is known by the name cinidon-ethyl and is described, for example, in DE-A-4 037 840. The compound of formula 2.48 is known by the name benzfendizone and is described, for example, in WO 97/08953. The compound of formula 2.49 is known as diflufenzopyr and is described, for example, in EP-A-0 646 315. The compound of formula 2.50 (amicarbazone) and its preparation are disclosed in DD 298 393 and in US-A-5 194 085. The compound of formula 2.51 (flufenpyr-ethyl) is described in Abstracts of Papers American Chemical Society, (2000) Vol. 220, No. Part 1, pp. AGRO 174.

It is extremely surprising that the combination of the active ingredient of formula I with one or more active ingredients selected from formulae 2.1 to 2.51 exceeds the additive effect on the weeds to be controlled that is to be expected in principle, and thus broadens the range of action of the individual active ingredients especially in two respects: Firstly, the rates of application of the individual compounds of formulae 1 and 2.1 to 2.51 are reduced while a good level of action is maintained and, secondly, the composition according to the invention achieves a high level of weed control also in those cases where the individual substances, in the range of low rates of application, have become unusable from the agronomic standpoint. The result is a considerable broadening of the spectrum of weeds and an additional increase in selectivity in respect of the crops of useful plants, as is necessary and desirable in the event of an unintentional overdose of active ingredient. The composition according to the invention, while retaining excellent control of weeds in crops of useful plants, also enables greater flexibility in succeeding crops.

The composition according to the invention can be used against a large number of agronomically important weeds, such as Stellaria, Nasturtium, Agrostis, Digitaria, Avena, Setaria, Sinapis, Lolium, Solanum, Phaseolus, Echinochloa, Scirpus, Monochoria, Sagittaria, Bromus, Alopecurus, Sorghum halepense, Rottboellia, Cyperus, Abutilon, Sida, Xanthium,

Amaranthus, Chenopodium, Ipomoea, Chrysanthemum, Galium, Viola and Veronica. The composition according to the invention is suitable for all methods of application conventionally used in agriculture, e.g. pre-emergence application, post-emergence application and seed dressing. The composition according to the invention is suitable especially for controlling weeds in crops of useful plants, such as cereals, rape, sugar beet, sugar cane, plantation crops, rice, maize and soybeans, and also for non-selective weed control.

"Crops" are to be understood to mean also those crops which have been made tolerant to herbicides or classes of herbicides as a result of conventional methods of breeding or genetic engineering.

The composition according to the invention comprises the active ingredient of formula I and the active ingredients of formulae 2.1 to 2.51 in any mixing ratio, but usually has an excess of one component over the others. Generally, the mixing ratios (ratios by weight) of the active ingredient of formula I and the mixing partners of formulae 2.1 to 2.51 are from 1:2000 to 2000:1, especially from 200:1 to 1:200.

The rate of application may vary within wide limits and depends on the nature of the soil, the method of application (pre- or post-emergence; seed dressing; application to the seed furrow; no tillage application etc.), the crop plant, the weed to be controlled, the prevailing climatic conditions, and other factors governed by the method of application, the time of application and the target crop. The active ingredient mixture according to the invention can generally be applied at a rate of from 1 to 5000 g of active ingredient mixture/ha.

The mixtures of the compound of formula I with the compounds of formulae 2.1 to 2.51 may be used in unmodified form, that is to say as obtained in the synthesis. Preferably, however, they are formulated in customary manner, together with the adjuvants conventionally used in formulation technology, such as solvents, solid carriers or surfactants, for example into emulsifiable concentrates, directly sprayable or dilutable solutions, dilute emulsions, wettable powders, soluble powders, dusts, granules or microcapsules. As with the nature of the compositions, the methods of application, such as spraying, atomising, dusting, wetting, scattering or pouring, are chosen in accordance with the intended objectives and the prevailing circumstances.

The formulations, i.e. the compositions, preparations or mixtures comprising the compounds (active ingredients) of formulae I and 2.1 to 2.51 and, where appropriate, one or more solid or liquid formulation adjuvants, are prepared in a manner known *per se*, e.g. by intimately mixing and/or grinding the active ingredients with the formulation adjuvants, e.g. solvents or solid carriers. In addition, surface-active compounds (surfactants) may also be used in the preparation of the formulations.

Examples of solvents and solid carriers are given, for example, in WO 97/34485, page 6.

Depending on the nature of the compound of formula I to be formulated, suitable surfaceactive compounds are non-ionic, cationic and/or anionic surfactants and surfactant mixtures having good emulsifying, dispersing and wetting properties.

Examples of suitable anionic, non-ionic and cationic surfactants are listed, for example, in WO 97/34485, pages 7 and 8.

Also suitable in the preparation of the herbicidal compositions according to the invention are the surfactants conventionally used in formulation technology, which are described, *inter alia*, in "McCutcheon's Detergents and Emulsifiers Annual" MC Publishing Corp., Ridgewood New Jersey, 1981, Stache, H., "Tensid-Taschenbuch", Carl Hanser Verlag, Munich/Vienna, 1981 and M. and J. Ash, "Encyclopedia of Surfactants", Vol I-III, Chemical Publishing Co., New York, 1980-81.

The herbicidal formulations usually contain from 0.1 to 99 % by weight, especially from 0.1 to 95 % by weight, of active ingredient mixture comprising a compound of formula I and the compounds of formulae 2.1 to 2.51, from 1 to 99.9 % by weight of a solid or liquid formulation adjuvant, and from 0 to 25 % by weight, especially from 0.1 to 25 % by weight, of a surfactant.

Whereas commercial products are usually formulated as concentrates, the end user will normally employ dilute formulations. The compositions may also comprise further ingredients, such as stabilisers, e.g. vegetable oils or epoxidised vegetable oils (epoxidised coconut oil, rapeseed oil or soybean oil), antifoams, e.g. silicone oil, preservatives, viscosity

regulators, binders, tackifiers, and also fertilisers or other active ingredients. Preferred formulations have especially the following compositions:

(% = percent by weight)

## **Emulsifiable concentrates:**

active ingredient mixture:

1 to 90 %, preferably 5 to 20 %

surfactant:

1 to 30 %, preferably 10 to 20 %

liquid carrier:

5 to 94 %, preferably 70 to 85 %

#### **Dusts:**

active ingredient mixture:

0.1 to 10 %, preferably 0.1 to 5 %

solid carrier:

99.9 to 90 %, preferably 99.9 to 99 %

## Suspension concentrates:

active ingredient mixture:

5 to 75 %, preferably 10 to 50 %

water:

94 to 24 %, preferably 88 to 30 %

surfactant:

1 to 40 %, preferably 2 to 30 %

### Wettable powders:

active ingredient mixture:

0.5 to 90 %, preferably 1 to 80 %

surfactant:

0.5 to 20 %, preferably 1 to 15 %

solid carrier:

5 to 95 %, preferably 15 to 90 %

## **Granules:**

active ingredient mixture:

0.1 to 30 %, preferably 0.1 to 15 %

solid carrier:

99.5 to 70 %, preferably 97 to 85 %

The following Examples illustrate the invention further, but do not limit the invention.

F1. Emulsifiable concentrates	a)	b)	c)	d)
active ingredient mixture	5 %	10 %	25 %	50 %
calcium dodecylbenzenesulfonate	6 %	8 %	6 %	8 %
castor oil polyglycol ether	4 %	-	4 %.	4 %
(36 mol of ethylene oxide)				

octylphenol polyglycol ether	-	4 %	-	2 %
(7-8 mol of ethylene oxide)				
cyclohexanone	-	-	10 %	20 %
arom. hydrocarbon mixture	85 %	78 %	55 %	16 %
C ₉ -C ₁₂			_	

Emulsions of any desired concentration can be obtained from such concentrates by dilution with water.

F2. Solutions	a)	b)	c)	d)
active ingredient mixture	5 %	10 %	50 %	90 %
1-methoxy-3-(3-methoxy-				
propoxy)-propane	-	20 %	20 %	-
polyethylene glycol MW 400	20 %	10 %	-	-
N-methyl-2-pyrrolidone	_	-	30 %	10 %
arom. hydrocarbon mixture	<b>75</b> %	60 %	-	-
C ₉ -C ₁₂				

The solutions are suitable for use in the form of microdrops.

F3. Wettable powders	a)	b)	c)	d)
active ingredient mixture	5%	25 %	50 %	80 %
sodium lignosulfonate	4 %	-	3 %	-
sodium lauryl sulfate	2%	3 %	-	4 %
sodium diisobutylnaphthalene-	•			
sulfonate	-	6 %	5 %	6 %
octylphenol polyglycol ether	-	1 %	2 %	-
(7-8 mol of ethylene oxide)				
highly dispersed silicic acid	1 %	3 %	5 %	10 %
kaolin	88 %	62 %	35 %	-

The active ingredient is mixed thoroughly with the adjuvants and the mixture is thoroughly ground in a suitable mill, affording wettable powders which can be diluted with water to give suspensions of any desired concentration.

F4. Coated granules	a)	b)	c)
active ingredient mixture	0.1 %	5 %	15 %

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highly dispersed silicic acid	0.9 %	2 %	2 %
inorganic carrier	99.0 %	93 %	83 %
(Æ 0.1 - 1 mm)			

e.g. CaCO₃ or SiO₂

The active ingredient is dissolved in methylene chloride and applied to the carrier by spraying, and the solvent is then evaporated off *in vacuo*.

F5. Coated granules	a)	b)	c)
active ingredient mixture	0.1 %	5 %	15 %
polyethylene glycol MW 200	1.0 %	2 %	3 %
highly dispersed silicic acid	0.9 %	1 %	2 %
inorganic carrier	98.0 %	92 %	80 %
(Æ 0.1 - 1 mm)			

e.g. CaCO₃ or SiO₂

The finely ground active ingredient is uniformly applied, in a mixer, to the carrier moistened with polyethylene glycol. Non-dusty coated granules are obtained in this manner.

F6. Extruder granules	a)	b)	c)	d)
active ingredient mixture	0.1 %	3 %	5 %	15 %
sodium lignosulfonate	1.5 %	2 %	3 %	4 %
carboxymethylcellulose	1.4 %	2 %	2 %	2 %
kaolin	97.0 %	93 %	90 %	79 %

The active ingredient is mixed and ground with the adjuvants, and the mixture is moistened with water. The mixture is extruded and then dried in a stream of air.

F7. Dusts	a)	b)	c)	
active ingredient mixture	0.1 %	1 %	5 %	
talcum	39.9 %	49 %	35 %	
kaolin	60.0 %	50 %	60 %	

Ready-to-use dusts are obtained by mixing the active ingredient with the carriers and grinding the mixture in a suitable mill.

F8. Suspension concentrates	a)	b)	c)	d)
active ingredient mixture	3 %	10 %	25 %	50 %

ethylene glycol	5 %	5 %	5 %	5 %
nonylphenol polyglycol ether	-	1 %	2 %	-
(15 mol of ethylene oxide)				
sodium lignosulfonate	3 %	3 %	4 %	5 %
carboxymethylcellulose	1 %	1 %	1%	1 %
37 % aqueous formaldehyde	0.2 %	0.2 %	0.2 %	0.2 %
solution .				
silicone oil emulsion	0.8 %	0.8 %	0.8 %	0.8 %
water	87 %	79 %	62 %	38 %

The finely ground active ingredient is intimately mixed with the adjuvants, giving a suspension concentrate from which suspensions of any desired concentration can be obtained by dilution with water.

It is often more practical for the compound of formula I and the mixing partner or partners of formulae 2.1 to 2.51 to be formulated separately and to be brought together in the desired mixing ratio in the applicator in the form of a "tank mixture" in water shortly before application.

#### Biological Examples:

A synergistic effect exists whenever the action of the active ingredient combination of compounds of formula I and 2.1 to 2.51 is greater than the sum of the actions of the active ingredients applied separately.

The herbicidal action to be expected We for a given combination of two herbicides can be calculated as follows (see COLBY, S.R., "Calculating synergistic and antagonistic response of herbicide combinations", Weeds 15, pages 20-22, 1967):

$$We = X + [Y \bullet (100 - X)/100]$$

#### wherein:

X = percentage herbicidal action on treatment with the compound of formula I at a rate of application of p kg per hectare, compared with the untreated control (= 0 %).

Y = percentage herbicidal action on treatment with a compound of formula 2.1 to 2.51 at a rate of application of q kg per hectare, compared with the untreated control.

We = expected herbicidal action (percentage herbicidal action compared with the untreated control) following treatment with the compounds of formulae I and 2.1  $\stackrel{\frown}{10}$  2.51 at a rate of application of p + q kg of active ingredient per hectare.

When the action actually observed is greater than the value to be expected We, there is a synergistic effect.

The synergistic effect of the combinations of a compound of formula I with the compounds of formulae 2.1 to 2.51 is demonstrated in the following Examples.

### Experiment description - pre-emergence test:

Monocotyledonous and dicotyledonous test plants are sown in standard soil in plastics pots. Directly after sowing, the test substances are applied in aqueous suspension by spraying (500 litres of water/ha). The rates of application depend on the optimum doses ascertained under field conditions and greenhouse conditions. The test plants are then grown on in the greenhouse under optimum conditions. The tests are evaluated after 36 days (% action, 100 % = plant has died, 0 % = no phytotoxic action). Examples of the synergistic action of the compositions according to the invention are given in the following Tables B1 to B6:

Mixture A contains as active ingredients 915 g/litre of the compound of formula 2.2a and 45 g/litre of the compound of formula 3.1.

Table B1:

Test plant:	Compd. 1.001	Mixture A	Compd. 1.001 [25 g/ha]	We accord-
	[25 g/ha]	[900 g/ha]	+ mixture A [900 g/ha]	ing to Colby
Sorghum	30	20	90	44
Chenopodium	0	0	100	0
Sida	0	70	100	70

Table B2:

Test plant:	Compd. 1.001	Mixture A	Compd. 1.001 [12.5 g/ha]	We accord-
	[12.5 g/ha]	[900 g/ha]	+ mixture A [900 g/ha]	ing to Colby
Sorghum	0	20	80 _	20
Chenopodium	0	0	95	0
Sida	0	70	95	70

## Table B3:

Test plant:	Compd. 1.001	Mixture A	Compd. 1.001 [6.25 g/ha]	We accord-
	[6.25 g/ha]	[900 g/ha]	+ mixture A [900 g/ha]	ing to Colby
Sorghum	0	20	70	20
Chenopodium	0	0	95	0
Sida	0	70	95	70

# Table B4:

Test plant:	Compd. 1.001	Mixture A	Compd. 1.001 [25 g/ha]	We accord-
	[25 g/ha]	[300 g/ha]	+ mixture A [300 g/ha]	ing to Colby
Chenopodium	0	0	90	0
Ipomoea	30	0	100	30
Sida	0	0	40	0

## Table B5:

Test plant:	Compd. 1.001 [12.5 g/ha]	Mixture A [300 g/ha]	Compd. 1.001 [12.5 g/ha] + mixture A [300 g/ha]	We accord-
Chenopodium	0	0	80	0
Ipomoea	0	0	60	0
Sida	0	0	40	0

Table B6:

Test plant:	Compd. 1.001	Mixture A	Compd. 1.001 [6.25 g/ha]	We accord-
	[6.25 g/ha]	[300 g/ha]	+ mixture A [300 g/ha]	ing to Colby
Chenopodium	0	0	80	0
Ipomoea	0	0	60	0
Sida	0	0	40	0

## Experiment description - post-emergence test:

The test plants are grown to the 2- to 3-leaf stage in plastics pots under greenhouse conditions. A standard soil is used as cultivation substrate. At the 2- to 3-leaf stage, the herbicide is applied to the test plants on its own and as a mixture. The application is carried out using an aqueous suspension of the test substances in 500 litres of water/ha. The rates of application depend on the optimum doses ascertained under field conditions and greenhouse conditions. The tests are evaluated after 33 days (% action, 100 % = plant has died, 0 % = no phytotoxic action). Examples of the synergistic action of the compositions according to the invention are given in the following Tables B7 to B10:

Mixture A contains as active ingredients 915 g/litre of the compound of formula 2.2a and 45 g/litre of the compound of formula 3.1.

Table B7: Post-emergence test:

Test plant:	Compd. 1.001	Mixture A	Compd. 1.001 [12.5 g/ha]	We accord-
	[12.5 g/ha]	[900 g/ha]	+ mixture A [900 g/ha]	ing to Colby
Ipomoea	0	0	80	0
Polygonum	0	20	100	20
Xanthium	80	0	100	80

Table B8: Post-emergence test:

Test plant:	Compd. 1.001	Mixture A	Compd. 1.001 [12.5 g/ha]	We accord-
	[12.5 g/ha]	[300 g/ha]	+ mixture A [300 g/ha]	ing to Colby
Ipomoea	0	0	80	0
Polygonum	0	0	70	0
Xanthium	80	0	98	80

Table B9: Post-emergence test:

Test plant:	Compd. 1.001	Mixture A	Compd. 1.001 [6.25 g/ha]	11/10 00000
•				We accord-
	[6.25 g/ha]	[900 g/ha]	+ mixture A [900 g/ha]	ing to Colby
Ipomoea	0 .	0	70	0
Polygonum	0	20	70	20
Xanthium	70	0	80	70

Table B10: Post-emergence test:

Test plant:	Compd. 1.001	Mixture A	Compd. 1.001 [6.25 g/ha]	We accord-
	[6.25 g/ha]	[300 g/ha]	+ mixture A [300 g/ha]	ing to Colby
Ipomoea	0	0	80	0
Polygonum	0	0	70	0
Xanthium	70	0	70	70

In the following Tables, evaluation is carried out after 14 days:

Table B11: Pre-emergence action:

Polygonum	50	.80	95	90
	[50 g/ha]	[500 g/ha]	compd. 2.18 [500 g/ha]	ing to Colby
Test plant:	Compd. E8	Compd. 2.18	Compd. E8 [50 g/ha] +	We accord-

Table B12: Pre-emergence action:

Test plant:	Compd. E8	Compd. 2.14	Compd. E8 [100 g/ha] +	We acord-
	[100 g/ha]	[250 g/ha]	compd. 2.14 [250 g/ha]	ing to Colby
Polygonum	50	50	90	75

Table B13: Pre-emergence action:

Polygonum	50	30	90	65
	[100 g/ha]	[125 g/ha]	compd. 2.14 [125 g/ha]	ing to Colby
Test plant:	Compd. E8	Compd. 2.14	Compd. E8 [100 g/ha] +	We accord-

Table B14: Pre-emergence action: Compound no. 2.13a corresponds to formula 2.13 wherein  $R_{74}$  is  $-CH_2CH_2CF_3$ ,  $Y_1$ ,  $Y_2$ ,  $Y_3$  and  $Y_4$  are each methine,  $Y_5$  is nitrogen and  $Y_6$  is methyl.

Test plant:	Compd. E8	Compd. 2.13a	Compd. E8 [100 g/ha] +	We accord-
	[100 g/ha]	[60 g/ha]	compd. 2.13a [60 g/ha]	ing to Colby
Polygonum	50	80	95	90

## Table B15: Pre-emergence action:

Test plant:	Compd. E8	Compd. 2.30	Compd. E8 [50 g/ha] +	We accord-
	[50 g/ha]	[60 g/ha]	compd. 2.30 [60 g/ha]	ing to Colby
Polygonum	50	30	90	65

#### Table B16: Pre-emergence action:

Polygonum	50	50	100	75
	[50 g/ha]	[30 g/ha]	compd. 2.21 [30 g/ha]	ing to Colby
Test plant:	Compd. E8	Compd. 2.21	Compd. E8 [50 g/ha] +	We accord-

Table B17: Pre-emergence action: Compound no. 2.4.a corresponds to formula 2.4 wherein  $R_{57}$  is chlorine,  $R_{58}$  is ethyl and  $R_{59}$  is tert-butyl.

Test plant:	Compd. E8	Compd. 2.4.a	Compd. E8 [50 g/ha] +	We accord-
•	[50 g/ha]	[125 g/ha]	compd. 2.4.a [125 g/ha]	ing to Colby
Polygonum	50	30	85	65

## Table B18: Pre-emergence action:

Test plant:	Compd. 1.001	Compd. 2.2.b	Compd. 1.001 [25 g/ha] +	We accord-
	[25 g/ha]	[300 g/ha]	compd. 2.2.b [300 g/ha]	ing to Colby
Chenopodium	80	0	95	80
Solanum	80	40	98	88
Cyperus	0	0	50	0

Table B19: Pre-emergence action:

Compound no. 2.3.a corresponds to formula 2.3 wherein  $R_{56}$  is CH(Me)- $CH_2OMe$ .

Test plant:	Compd. 1.001	Compd. 2.3.a	Compd. 1.001 [12.5 g/ha]	We accord-
	[12.5 g/ha]	[100 g/ha]	+ compd. 2.3.a [100 g/ha]	ing to Colby
Chenopodium	80	20	90	84
Solanum	75	60	90 _	90
Cyperus	0	20	· 60	20

Table B20: Pre-emergence action:

Compound no. 2.2.c corresponds to formula 2.2 wherein  $R_{53}$  and  $R_{54}$  are ethyl and  $R_{55}$  is  $CH_2OMe$ .

Test plant:	Compd. 1.001	Compd.	Compd. 1.001	We
	[12.5 g/ha]	2.2.c	[12.5 g/ha] + compd.	according
		[100 g/ha]	2.2.c [100 g/ha]	to Colby
Chenopodium	80	20	90	84
Solanum	75	50	95	88
Cyperus	0	0	30	0

Table B21: Pre-emergence action:

Compound no. 2.2.d corresponds to formula 2.2 wherein  $R_{53}$  is ethyl,  $R_{54}$  is methyl and  $R_{55}$  is  $CH_2O-CH_2CH_3$ .

Test plant:	Compd. 1.001 [12.5 g/ha]	Compd. 2.2.d [100 g/ha]	Compd. 1.001 [12.5 g/ha] + compd. 2.2.d [100 g/ha]	We according to Colby
Solanum	75	60	95	90

Table B22: Pre-emergence action:

Test plant:	Compd. 1.001 [25 g/ha]	Compd. 2.30 [100 g/ha]	Compd. 1.001 [25 g/ha] + compd. 2.30 [100 g/ha]	We according to Colby
Cyperus	10	0	60	10

In the following Tables, evaluation is carried out after 31 days:

Table B23: Pre-emergence action: Compound no. 2.4.a corresponds to the compound of formula 2.4 wherein  $R_{57}$  is chlorine,  $R_{58}$  is ethyl and  $R_{59}$  is isopropyl.

Test plant:	Compd. 1.001	Compd.	Compd. 1.001	We
	[25 g/ha]	2.4.a [250 g/ha]	[25 g/ha] + compd. 2.4.a [250 g/ha]	according to Colby
Polygonum	0	20	80	20

Table B24: Pre-emergence action: Compound no. 2.4.b corresponds to the compound of formula 2.4 wherein  $R_{57}$  is chlorine,  $R_{58}$  is ethyl and  $R_{59}$  is ethyl.

Test plant:	Compd. 1.001	Compd.	Compd. 1.001	We
	[25 g/ha]	2.4.b	[25 g/ha] + compd.	according
		[125 g/ha]	2.4.b [125 g/ha]	to Colby
Polygonum	0	0	40	0

Table B25: Pre-emergence action: Compound no. 2.4.c corresponds to the compound of formula 2.4 wherein  $R_{57}$  is chlorine,  $R_{58}$  is ethyl and  $R_{59}$  is tert-butyl.

Test plant:	Compd. 1.001	Compd.	Compd. 1.001	We
	[25 g/ha]	2.4.c	[25 g/ha] + compd.	according
		[250 g/ha]	2.4.c [250 g/ha]	to Colby
Ipomoea	70	0	90	70
Xanthium	80	0	100	80

Table B26: Pre-emergence action: Compound no. 2.4.d corresponds to the compound of formula 2.4 wherein  $R_{57}$  is methylthio,  $R_{58}$  is ethyl and  $R_{59}$  is tert-butyl.

Test plant:	Compd. 1.001	Compd.	Compd. 1.001	We
•	[25 g/ha]	2.4.d	[25 g/ha] + compd.	according
		[250 g/ha]	2.4.d [250 g/ha]	to Colby
Ipomoea	70	0	80	70
Xanthium	80	10	95	82

Table B27: Pre-emergence action:

Compd. 1.001	Compd.	Compd. 1.001	We
[25 g/ha]	2.14	[25 g/ha] + compd.	according
	[125 g/ha]	2.14 [125 g/ha]	to Colby
70	0	85	70
80	20	100	84
	[25 g/ha]	[25 g/ha] 2.14 [125 g/ha] 70 0	[25 g/ha] 2.14 [25 g/ha] + compd. [125 g/ha] 2.14 [125 g/ha] 70 0 85

Table B28: Pre-emergence action: Compound no. 2.6.a corresponds to the compound of formula 2.6 wherein  $R_{62}$  is hydrogen,  $R_{63}$  is methyl,  $R_{64}$  is fluorine,  $R_{65}$  is hydrogen, Y is nitrogen, Z is methine and  $R_{66}$  is fluorine.

Polygonum	0	30	90	30
	·	[30 g/ha]	2.6.a [30 g/ha]	to Colby
	[50 g/ha]	2.6.a	[50 g/ha] + compd.	according
Test plant:	Compd. 1.001	Compd.	Compd. 1.001	We

In the following Tables, evaluation is carried out after 21 days:

Table B29: Post-emergence action: Compound no. 2.7.a corresponds to the compound of formula 2.7 wherein  $R_{67}$  is -C(O)-S-n-octyl.

Test plant:	Compd. 1.001	Compd.	Compd. 1.001	We
	[25 g/ha]	2.7.a	[25 g/ha] + compd.	according
		[250 g/ha]	2.7.a [250 g/ha]	to Colby
Ipomoea	30	10	80	30
Polygonum	75	0	95	75
Xanthium	90	10	100	91

Table B30: Post-emergence action:

Test plant:	Compd. 1.001 [25 g/ha]	Compd. 2.19 [250 g/ha]	Compd. 1.001 [25 g/ha] + compd. 2.19 [250 g/ha]	We according to Colby
Ipomoea	30	60	95	72

Table B31: Post-emergence action:

Test plant:	Compd. 1.001	Compd.	Compd. 1.001	We
	[25 g/ha]	2.16	[25 g/ha] + compd.	according
		[360 g/ha]	2.16 [360 g/ha]	to Colby
Ipomoea	30	20	70	46
Polygonum	75	10	90	84

Table B32: Post-emergence action:

Test plant:	Compd. 1.001	Compd.	Compd. 1.001	We
	[12.5 g/ha]	2.33	[12.5 g/ha] + compd.	according
		[360 g/ha]	2.33 [360 g/ha]	to Colby
Polygonum	30	0	90	30

Table B33: Post-emergence action: Compound no. 2.12.a corresponds to the compound of formula 2.12 wherein  $R_{73}$  is  $NH_2$ .

Ipomoea	30	[400 g/ha]	2.33 [400 g/ha]	to Colby
Test plant:	Compd. 1.001 [25 g/ha]	Compd. 2.12.a	Compd. 1.001 [25 g/ha] + compd.	We according

Table B34: Post-emergence action:

Test plant:	Compd. 1.001	Compd.	Compd. 1.001	We
	[12.5 g/ha]	2.25	[12.5 g/ha] + compd.	according
		[2 g/ha]	2.25 [2 g/ha]	to Colby
Ipomoea	30	0	50	30
Polygonum	30	0	40	30

Table B35: Post-emergence action: Compound no. 2.1.a corresponds to the compound of formula 2.1 wherein  $R_{52}$  is hydrogen and  $R_{51}$  is ethyl.

Test plant:	Compd. 1.001 [12.5 g/ha]	Compd. 2.1.a [30 g/ha]	Compd. 1.001 [12.5 g/ha] + compd. 2.1.a [30 g/ha]	We according to Colby
Polygonum	30	30	70	51

Table B36: Post-emergence action: Compound no. 2.1.b corresponds to the compound of formula 2.1 wherein  $R_{51}$  is  $CH_2OMe$  and  $R_{52}$  is hydrogen.

Test plant:	Compd. 1.001 [25 g/ha]	Compd. 2.1.b [30 g/ha]	Compd. 1.001 [25 g/ha] + compd. 2.1.b [30 g/ha]	We according
Polygonum	75	30	90	to Colby

In the following Tables, evaluation is carried out after 23 days:

Table B37: Pre-emergence action: Compound no. 2.13.b corresponds to formula 2.13 wherein  $R_{74}$  is –COOMe,  $Y_1$ ,  $Y_2$ ,  $Y_3$  and  $Y_4$  are each methine,  $Y_5$  is methine and  $Y_6$  and  $Y_7$  are difluoromethoxy.

Chenopodium	50	70	95	85
		[15 g/ha]	2.13.b [15 g/ha]	Colby
	[6 g/ha]	2.13.b	[6 g/ha] + compd.	according to
Test plant:	Compd. 1.001	Compd.	Compd. 1.001	We

Table B38: Pre-emergence action:

Test plant:	Compd. 1.001 [6 g/ha]	Compd. 2.13.c [60 g/ha]	Compd. 1.001 [6 g/ha] + compd. 2.13.c [60 g/ha]	We according to Colby
Chenopodium	50	10	85	55

Table B39: Pre-emergence action: Compound no. 2.13.d corresponds to the compound of formula 2.13 wherein  $Y_1$ ,  $Y_2$ ,  $Y_3$  and  $Y_4$  are methine,  $R_{74}$  is trifluoromethyl,  $Y_5$  is nitrogen,  $Y_6$  is trifluoromethyl and  $Y_7$  is methoxy.

Test plant:	Compd. 1.001 [6 g/ha]	Compd. 2.13d [7.5 g/ha]	Compd. 1.001 [6 g/ha] + compd. 2.13.d [7.5 g/ha]	We according to Colby
Amaranthus	10	80	95	82

It has surprisingly been shown that special safeners are suitable for mixing with the synergistic composition according to the invention. The present invention accordingly relates also to a herbicidally selective composition for controlling grasses and weeds in crops of useful plants, especially in maize crops, that comprises a compound of formula I, one or more compounds selected from the compounds of formulae 2.1 to 2.51, and a safener (counter agent, antidote), and that protects the useful plants, but not the weeds, against the phytotoxic action of the herbicide, as well as to the use of such a composition in the control of weeds in crops of useful plants.

There is also proposed in accordance with the invention a herbicidally selective composition that, in addition to comprising customary inert formulation adjuvants, such as carriers, solvents and wetting agents, comprises as active ingredient a mixture of a) a herbicidally-synergistically effective amount of a compound of formula I and one or more compounds selected from the compounds of formulae 2.1 to 2.51 and b) a herbicidally-antagonistically effective amount of a compound selected from the compound of formula 3.1

and the compound of formula 3.2

and the compound of formula 3.3

and the compound of formula 3.4

and the compound of formula 3.5

and the compound of formula 3.6

and the compound of formula 3.7

and the compound of formula 3.8

and of formula 3.9

 $Cl_2CHCON(CH_2CH=CH_2)_2$  (3.9),

and of formula 3.10

and of formula 3.11

and of formula 3.12

# and of formula 3.13

## and of formula 3.14

# and of formula 3.15

and of formula 3.16

The invention relates also to a herbicidally selective herbicidal composition that, in addition to comprising customary inert formulation adjuvants, such as carriers, solvents and wetting agents, comprises as active ingredient a mixture of

- a) a herbicidally effective amount of a compound of formula I and
- b) a herbicidally-antagonistically effective amount of a compound selected from the compounds of formulae 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, 3.11, 3.12, 3.13, 3.14, 3.15 and 3.16.

Preferred compositions according to the invention comprise as safener a compound selected from the compounds of formulae 3.1, 3.3 and 3.8. Those safeners are especially suitable for compositions according to the invention that comprise the above-mentioned preferred compounds of formula I and optionally of formulae 2.1 to 2.51.

Combinations of compounds of formula I with the compound of formula 3.1 have been shown to be especially effective compositions, with special preference being given to compound no. 1.001 as the compound of formula I. That composition is preferably used together with the compound of formula 2.2a

chloroacetyl-2-ethyl-6-methylaniline).

The invention relates also to a method for the selective control of weeds in crops of useful plants, which comprises treating the useful plants, seeds or cuttings thereof, or the area of cultivation thereof, with a herbicidally effective amount of the herbicide of formula I, as

appropriate one or more herbicides selected from the compounds of formulae 2.1 to 2.51, and a herbicidally-antagonistically effective amount of a safener of formulae 3.1 to 3.16.

The compounds of formulae 3.1 to 3.16 are known and are described, for example, in the Pesticide Manual, eleventh ed., British Crop Protection Council, 1997 under the entry numbers 61 (formula 3.1, benoxacor), 304 (formula 3.2, fenclorim), 154 (formula 3.3, cloquintocet), 462 (formula 3.4, mefenpyr-diethyl), 377 (formula 3.5, furilazol), 363 (formula 3.8, fluxofenim), 213 (formula 3.9, dichlormid) and 350 (formula 3.10, flurazole). The compound of formula 3.11 is known by the name MON 4660 (Monsanto) and is described, for example, in EP-A-0 436 483.

The compound of formula 3.6 (AC 304 415) is described, for example, in EP-A-0 613 618, and the compound of formula 3.7 in DE-A-2 948 535. The compounds of formula 3.12 are described in DE-A-4 331 448, and the compound of formula 3.13 in DE-A-3 525 205. The compound of formula 3.14 is known, for example, from US-A-5 215 570 and the compound of formula 3.15 from EP-A-0 929 543. The compound of formula 3.16 is described in WO 99/00020. In addition to the compound of formula 3.16, the other 3-(5-tetrazolyl-carbonyl)-2-quinolones described in WO 99/00020, especially the compounds specifically disclosed in Tables 1 and 2 on pages 21 to 29, are suitable for protecting the crop plants against the phytotoxic action of the compounds of formula I.

As crop plants that can be protected by the safeners of formulae 3.1 to 3.16 against the damaging effect of the above-mentioned herbicides there come into consideration especially cereals, cotton, soybeans, sugar beet, sugar cane, plantation crops, rape, maize and rice, more especially maize. "Crops" are to be understood to mean also those crops which have been made tolerant to herbicides or classes of herbicides as a result of conventional methods of breeding or genetic engineering.

The weeds to be controlled may be both monocotyledonous and dicotyledonous weeds, e.g. Stellaria, Agrostis, Digitaria, Avena, Apera, Brachiaria, Phalaris, Setaria, Sinapis, Lolium, Solanum, Echinochloa, Scirpus, Monochoria, Sagittaria, Panicum, Bromus, Alopecurus, Sorghum halepense, Sorghum bicolor, Rottboellia, Cyperus, Abutilon, Sida, Xanthium, Amaranthus, Chenopodium, Ipomoea, Chrysanthemum, Galium, Viola and Veronica.

Areas of cultivation include the areas of ground on which the crop plants are already growing or which have already been sown with the seeds of those crop plants, as well as ground intended for cultivation with such crop plants.

Depending on the intended use, a safener of formula 3.1 to 3.16 can be used in the pretreatment of the seed of the crop plant (dressing of the seeds or cuttings) or can be introduced into the soil before or after sowing. It can, however, also be applied, either alone or together with the herbicide, after emergence of the plants. The treatment of the plants or seeds with the safener can therefore in principle be carried out independently of the time at which the herbicide is applied. The plants can, however, also be treated by simultaneous application of herbicide and safener (e.g. in the form of a tank mixture). The ratio of the rate of application of safener to the rate of application of herbicide depends largely on the method of application. In the case of field treatment, which is carried out either using a tank mixture comprising a combination of safener and herbicide or by separate application of safener and herbicide, the ratio of herbicides to safener is generally from 100:1 to 1:10, preferably from 20:1 to 1:1. In the case of field treatment it is usual to apply from 0.001 to 1.0 kg of safener/ha, preferably from 0.001 to 0.25 kg of safener/ha.

The rate of application of herbicides is generally from 0.001 to 2 kg/ha, but preferably from 0.005 to 0.5 kg/ha.

The compositions according to the invention are suitable for all methods of application conventionally used in agriculture, e.g. pre-emergence application, post-emergence application and seed dressing.

In the case of seed dressing, generally from 0.001 to 10 g of safener/kg of seed, preferably from 0.05 to 2 g of safener/kg of seed, are applied. When the safener is applied in liquid form shortly before sowing, with soaking of the seeds, then advantageously the safener solutions used contain the active ingredient in a concentration of from 1 to 10 000 ppm, preferably from 100 to 1000 ppm.

For the purpose of application, the safeners of formulae 3.1 to 3.16 or combinations of those safeners with the herbicide of formula I and, as appropriate, one or more herbicides selected from formulae 2.1 to 2.51 are advantageously formulated together with adjuvants customary

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in formulation technology, e.g. into emulsifiable concentrates, coatable pastes, directly sprayable or dilutable solutions, dilute emulsions, wettable powders, soluble powders, dusts, granules or microcapsules.

Such formulations are described, for example, in WO 97/34485, pages 9 to 13. The formulations are prepared in known manner, e.g. by intimately mixing and/or grinding the active ingredients with liquid or solid formulation adjuvants, e.g. solvents or solid carriers. In addition, surface-active compounds (surfactants) can also be used in the preparation of the formulations. Solvents and solid carriers suitable for that purpose are mentioned, e.g., in WO 97/34485, page 6.

Depending on the nature of the compounds of formulae I, 2.1 to 2.51 and 3.1 to 3.16 to be formulated, there come into consideration as surface-active compounds non-ionic, cationic and/or anionic surfactants and surfactant mixtures having good emulsifying, dispersing and wetting properties. Examples of suitable anionic, non-ionic and cationic surfactants are listed, for example, on pages 7 and 8 of WO 97/34485. Also suitable for the preparation of the herbicidal compositions according to the invention are the surfactants conventionally employed in formulation technology, which are described, *inter alia*, in "McCutcheon's Detergents and Emulsifiers Annual" MC Publishing Corp., Ridgewood New Jersey, 1981, Stache, H., "Tensid-Taschenbuch", Carl Hanser Verlag, Munich/Vienna, 1981 and M. and J. Ash, "Encyclopedia of Surfactants", Vol. I-III, Chemical Publishing Co., New York, 1980-81.

The herbicidal formulations usually contain from 0.1 to 99 % by weight, especially from 0.1 to 95 % by weight, of active ingredient mixture comprising a compound of formula I, a compound selected from the compounds of formulae 2.1 to 2.51 and the compounds of formulae 3.1 to 3.16, from 1 to 99.9 % by weight of a solid or liquid formulation adjuvant and from 0 to 25 % by weight, especially from 0.1 to 25 % by weight, of a surfactant. Whereas commercial products are usually formulated as concentrates, the end user will normally employ dilute formulations.

The compositions may also comprise further ingredients, such as stabilisers, e.g. vegetable oils or epoxidised vegetable oils (epoxidised coconut oil, rapeseed oil or soybean oil), antifoams, e.g. silicone oil, preservatives, viscosity regulators, binders, tackifiers, and also

fertilisers or other active ingredients. For the use of safeners of formulae 3.1 to 3.16, or of compositions comprising them, in the protection of crop plants against the damaging effects of herbicides of formulae I and 2.1 to 2.51, various methods and techniques come into consideration, such as, for example, the following:

### i) Seed dressing

- a) Dressing of the seeds with a wettable powder formulation of a compound of formulae 3.1 to 3.16 by shaking in a vessel until uniformly distributed over the seed surface (dry dressing). In that procedure approximately from 1 to 500 g of compound of formulae 3.1 to 3.16 (4 g to 2 kg of wettable powder) are used per 100 kg of seed.
- b) Dressing of the seeds with an emulsifiable concentrate of a compound of formulae 3.1 to 3.16 according to method a) (wet dressing).
- c) Dressing by immersing the seeds for from 1 to 72 hours in a liquor comprising from 100 to 1000 ppm of a compound of formulae 3.1 to 3.16 and optionally subsequently drying the seeds (immersion dressing).

Dressing the seed or treating the germinated seedling are naturally the preferred methods of application, because treatment with the active ingredients is directed entirely at the target crop. Generally from 1 to 1000 g of antidote, preferably from 5 to 250 g of antidote, are used per 100 kg of seed, but depending on the methodology, which also enables the addition of other active ingredients or micronutrients, the concentration limits indicated can be varied up or down (repeat dressing).

### ii) Application as a tank mixture

A liquid formulation of a mixture of antidote and herbicide is used (ratio by weight of the one to the other from 10:1 to 1:100), the rate of application of herbicide being from 0.005 to 5.0 kg per hectare. Such tank mixtures are applied before or after sowing.

#### iii) Application to the seed furrow

The compounds of formulae 3.1 to 3.16 are introduced into the open, sown seed furrow in the form of an emulsifiable concentrate, wettable powder or granules. Once the seed furrow has been covered over, the herbicide is applied in the usual manner in the pre-emergence process.

## iv) Controlled release of active ingredient

The compounds of formulae 3.1 to 3.16 are applied in solution to mineral granule carriers or polymerised granules (urea/formaldehyde) and dried. If desired, it is also possible to apply a coating that allows the active ingredient to be released in metered amounts over a specific period of time (coated granules).

Preferred formulations have especially the following compositions: (% = percent by weight)

# Emulsifiable concentrates:

active ingredient mixture:

1 to 90 %, preferably 5 to 20 %

surfactant:

1 to 30 %, preferably 10 to 20 %

liquid carrier:

5 to 94 %, preferably 70 to 85 %

## **Dusts:**

active ingredient mixture:

0.1 to 10 %, preferably 0.1 to 5 %

solid carrier:

99.9 to 90 %, preferably 99.9 to 99 %

## Suspension concentrates:

active ingredient mixture:

5 to 75 %, preferably 10 to 50 %

water:

94 to 24 %, preferably 88 to 30 %

surfactant:

1 to 40 %, preferably 2 to 30 %

#### Wettable powders:

active ingredient mixture:

0.5 to 90 %, preferably 1 to 80 %

surfactant:

0.5 to 20 %, preferably 1 to 15 %

solid carrier:

5 to 95 %, preferably 15 to 90 %

#### **Granules:**

active ingredient mixture:

0.1 to 30 %, preferably 0.1 to 15 %

solid carrier:

99.5 to 70 %, preferably 97 to 85 %

The following Examples illustrate the invention further, but do not limit the invention.

Formulation Examples for mixture	es of herbicid	es of formula Lo	ntionally herbicide	s of
formulae 2.1 to 2.51, and safener				<del>_</del>
F1. Emulsifiable concentrates	a)	b)	c)	d) <u>ت</u>
active ingredient mixture	5 %	10 %	25 %	50 %
calcium dodecylbenzenesulfonate		8 %	6 %	8 %
castor oil polyglycol ether	4 %	-	4 %	4 %
(36 mol of ethylene oxide)	4 70			4 /6
octylphenol polyglycol ether	. <u>-</u>	4 %	<del>_</del>	2 %
(7-8 mol of ethylene oxide)	_	4 70	-	2 /6
cyclohexanone	_	_	10 %	20 %
aromatic hydrocarbon mixture	- 85 %	- 78 %	55 %	
C ₉ -C ₁₂	05 %	70 /8	55 %	16 %
Emulsions of any desired concent	ration can be	a obtained from a	uch concentrates	hy dilution
with water.	iation can be	s obtained nom s	uch concentrates	
will water.				
F2. Solutions	a)	b)	c)	d)
active ingredient mixture	5 %	10 %	50 %	90 %
1-methoxy-3-(3-methoxy-				00 /0
propoxy)-propane	_	20 %	20 %	-
polyethylene glycol MW 400	20 %	10 %	-	_
N-methyl-2-pyrrolidone	-	<del>-</del>	30 %	10 %
aromatic hydrocarbon mixture	75 %	60 %	-	_
C ₉ -C ₁₂				•
The solutions are suitable for use	in the form o	of microdrops.		
F3. Wettable powders	a)	b)	c)	. d)
active ingredient mixture	5 %	25 %	50 %	80 %
sodium lignosulfonate	4 %	-	3 %	-
sodium lauryl sulfate	2 %	3 %	-	4 %
sodium diisobutylnaphthalene-	-	6%	5 %	6 %
sulfonate				
octylphenol polyglycol ether	•	1 %	2 %	-
(7-8 mol of ethylene oxide)				
highly dispersed silicic acid	1 %	3 %	5 %	10 %

kaolin 88 % 62 % 35 %

The active ingredient is mixed thoroughly with the adjuvants and the mixture is thoroughly ground in a suitable mill, affording wettable powders which can be diluted with water to give suspensions of any desired concentration.

F4. Coated granules	a)	b)	c)
active ingredient mixture	0.1 %	5 %	15 %
highly dispersed silicic acid	0.9 %	2 %	2 %
inorganic carrier	99.0 %	93 %	83 %
(Æ 0.1 - 1 mm)			

e.g. CaCO₃ or SiO₂

The active ingredient is dissolved in methylene chloride and applied to the carrier by spraying, and the solvent is then evaporated off *in vacuo*.

F5. Coated granules	a)	<b>b)</b> ·	c)
active ingredient mixture	0.1 %	5 %	15 %
połyethylene glycol MW 200	1.0 %	2 %	3 %
highly dispersed silicic acid	0.9 %	1 %	2 %
inorganic carrier	98.0 %	92 %	80 %
1000			

(Æ 0.1 - 1 mm)

e.g. CaCO₃ or SiO₂

The finely ground active ingredient is uniformly applied, in a mixer, to the carrier moistened with polyethylene glycol. Non-dusty coated granules are obtained in this manner.

F6. Extruder granules	a) .	b)	c)	d)
active ingredient mixture	0.1 %	3 %	5 %	15 %
sodium lignosulfonate	1.5 %	2 %	3 %	4 %
carboxymethylcellulose	1.4 %	2 %	2 %	2 %
kaolin	97.0 %	93 %	90 %	79 %

The active ingredient is mixed and ground with the adjuvants, and the mixture is moistened with water. The mixture is extruded and then dried in a stream of air.

F7. Dusts	a)	b)	c)
active ingredient mixture	0.1 %	1 %	5 %
talcum	39.9 %	49 %	35 %
kaolin	60.0 %	50 %	60 %

Ready-to-use dusts are obtained by mixing the active ingredient with the carriers and grinding the mixture in a suitable mill.

F8. Suspension concentrates	a)	b)	c)	d)
active ingredient mixture	3 %	10 %	25 %	50 %
ethylene glycol	5 %	5 %	5 %	5 %
nonylphenol polyglycol ether	-	1 %	2 %	-
(15 mol of ethylene oxide)				
sodium lignosulfonate	3 %	3 %	4 %	5 %
carboxymethylcellulose	1 %	1 %	1 %	1 %
37 % aqueous formaldehyde	0.2 %	0.2 %	0.2 %	0.2 %
solution	•			
silicone oil emulsion	0.8 %	0.8 %	0.8 %	0.8 %
water	87 %	79 %	62 %	38 %

The finely ground active ingredient is intimately mixed with the adjuvants, giving a suspension concentrate from which suspensions of any desired concentration can be obtained by dilution with water.

It is often more practical for the compounds of formulae I, 2.1 to 2.51 and 3.1 to 3.16 to be formulated separately and then to be brought together in the desired mixing ratio in the applicator in the form of a "tank mixture" in water shortly before application.

The ability of the safeners of formulae 3.1 to 3.16 to protect crop plants against the phytotoxic action of herbicides of formula I is illustrated in the following Examples.

# Biological Example: safening action

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The test plants are grown in plastics pots under greenhouse conditions to the 4-leaf stage. At that stage, the herbicides alone, and the mixtures of the herbicides with the test compounds that are to be tested as safeners, are applied to the test plants. The application is in the form of an aqueous suspension of the test compounds prepared from a 25 %

wettable powder (Example F3, b)) with 500 litres of water/ha. 4 weeks after application, the phytotoxic action of the herbicides on the crop plants, e.g. maize and cereals, is evaluated using a percentage scale. 100 % denotes that the test plant has died, 0 % denotes no phytotoxic action.

The results obtained in this test demonstrate that damage to the crop plant caused by the herbicide of formula I in combination with one or more herbicides selected from formulae 2.1 to 2.51 can be significantly reduced by the compounds of formulae 3.1 to 3.16. Examples of the safening action are given in the following Table B40:

Tabl∈ B40:

Test plant	Compd.	Compd. 1.001	Compd. 1.001	Compd. 1.001
	1.001	[50 g/ha] +	[50 g/ha] +	[50 g/ha] +
	[50 g/ha]	compd. 3.3 [50 g/ha]	compd. 3.1 [50 g/ha]	compd. 3.8 [50 g/ha]
Maize	50	5	5	0
Abutilon	100	100	100	100
Setaria	100	100	100	100

The same results are obtained when the mixtures are formulated in accordance with Examples F1, F2 and F4 to F8.

#### What is claimed is:

1. A herbicidally selective composition that, in addition to comprising customary inert formulation adjuvants, comprises as active ingredient a mixture

a) a herbicidally effective amount of a compound of formula I

$$Q \qquad (I),$$

$$(R)_{m}$$

wherein each R is independently hydrogen, C₁-C₀alkyl, C₂-C₀alkenyl, C₂-C₀haloalkenyl, C₂-C₆alkynyl, C₂-C₆haloalkynyl, C₃-C₆cycloalkyl, C₁-C₆alkoxy, C₁-C₆haloalkoxy, C₁-C₆alkylthio, C₁-C₆alkylsulfinyl, C₁-C₆alkylsulfonyl, C₁-C₆haloalkyl, C₁-C₆haloalkylthio, C₁-C₆haloalkylsulfinyl, C₁-C₆haloalkylsulfonyl, C₁-C₆alkoxycarbonyl, C₁-C₆alkylcarbonyl, C₁- $C_6$ alkylamino, di( $C_1$ - $C_6$ alkyl)amino,  $C_1$ - $C_6$ alkylaminosulfonyl, di( $C_1$ - $C_6$ alkyl)aminosulfonyl, - $N(R_1)$ -S- $R_2$ ,  $-N(R_3)$ -SO- $R_4$ ,  $-N(R_5)$ -SO₂- $R_6$ , nitro, cyano, halogen, hydroxy, amino, benzylthio, benzylsulfinyl, benzylsulfonyl, phenyl, phenoxy, phenylthio, phenylsulfinyl or phenylsulfonyl; wherein the phenyl group may itself be mono-, di- or tri-substituted by C₁-C₆alkyl, C₁-C₆haloalkyl, C₃-C₆alkenyl, C₃-C₆haloalkenyl, C₃-C₆alkynyl, C₃-C₆haloalkynyl, C₁-C₆alkoxy, C₁-C₆haloalkoxy, C₃-C₆alkenyloxy, C₃-C₆alkynyloxy, mercapto, C₁-C₆alkylthio, C₁-C₆haloalkylthio, C₃-C₆alkenylthio, C₃-C₆haloalkenylthio, C₃-C₆alkynylthio, C₂-C₅alkoxyalkylthio, C₃-C₅acetylalkylthio, C₃-C₆alkoxycarbonylalkylthio, C₂-C₄cyanoalkylthio,  $C_1$ - $C_6$ alkylsulfinyl,  $C_1$ - $C_6$ haloalkylsulfinyl,  $C_1$ - $C_6$ alkylsulfonyl,  $C_1$ - $C_6$ haloalkylsulfonyl, aminosulfonyl, C₁-C₂alkylaminosulfonyl, C₂-C₄dialkylaminosulfonyl, C₁-C₃alkylene-R₄₅, NR₄₆R₄₇, halogen, cyano, nitro, phenyl or by benzylthio, wherein the latter phenyl and benzylthio groups may themselves be substituted on the phenyl ring by C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, halogen, cyano or by nitro; or each R is independently a monocyclic or fused bicyclic ring system having from 5 to 10 members, which may be aromatic or partially saturated and may contain from 1 to 4 hetero atoms selected from nitrogen, oxygen and sulfur; wherein the ring system either is bound directly to the pyridine ring or is bound to the pyridine ring via a C₁-C₄alkylene group, and each ring system may not contain more than two oxygen atoms and may not contain more than two sulfur atoms, and the ring system may itself be mono-, di- or tri-substituted by

 $C_1$ - $C_6$ alkyl,  $C_1$ - $C_6$ haloalkyl,  $C_3$ - $C_6$ alkenyl,  $C_3$ - $C_6$ haloalkynyl,  $C_3$ - $C_6$ haloalkynyl, C₁-C₆alkoxy, C₁-C₆haloalkoxy, C₃-C₆alkenyloxy, C₃-C₆alkynyloxy, mercapto, C₁-C₆alkylthio,  $C_1$ - $C_6$ haloalkylthio,  $C_3$ - $C_6$ alkenylthio,  $C_3$ - $C_6$ haloalkenylthio,  $C_3$ - $C_6$ alkynylthio,  $C_2$ - $C_5$ alkoxyalkylthio,  $C_3$ - $C_5$ acetylalkylthio,  $C_3$ - $C_6$ alkoxycarbonylalkylthio,  $C_2$ - $C_4$ cyanoalkylthio,  $C_1$ - $C_6$ alkylsulfinyl, C₁-C₆haloalkylsulfinyl, C₁-C₆alkylsulfonyl, C₁-C₆haloalkylsulfonyl, aminosulfonyl, C₁-C₂alkylaminosulfonyl, C₂-C₄dialkylaminosulfonyl, C₁-C₃alkylene-R₇, NR₈R₉, halogen, cyano, nitro, phenyl or by benzylthio, wherein phenyl and benzylthio may themselves be substituted on the phenyl ring by C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, halogen, cyano or by nitro, and wherein the substituents on the nitrogen in the heterocyclic ring are other than halogen; or

each R is independently  $C_1$ - $C_4$ alkoxy- $C_1$ - $C_2$ Alkoxy- $C_1$ m is 1, 2, 3 or 4;

 $R_1$ ,  $R_3$  and  $R_5$  are each independently of the others hydrogen or  $C_1$ - $C_6$ alkyl;  $R_2$  is  $NR_{10}R_{11}$ ,  $C_1$ - $C_6$ alkoxy,  $C_1$ - $C_6$ haloalkoxy,  $C_1$ - $C_6$ alkyl,  $C_1$ - $C_6$ haloalkyl,  $C_3$ - $C_6$ -loalkoxy,  $C_3$ - $C_6$ haloalkenyl, C₃-C₆alkynyl, C₃-C₆haloalkynyl, C₃-C₆cycloalkyl or phenyl, wherein phenyl may

itself be substituted by C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, halogen,

cyano or by nitro;

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 $R_4$  is  $NR_{12}R_{13}$ ,  $C_1$ - $C_6$ alkoxy,  $C_1$ - $C_6$ haloalkoxy,  $C_1$ - $C_6$ alkyl,  $C_1$ - $C_6$ haloalkyl,  $C_3$ - $C_6$ alkenyl,  $C_3$ - $C_6$ haloalkenyl, C₃-C₆alkynyl, C₃-C₆haloalkynyl, C₃-C₆cycloalkyl or phenyl, wherein phenyl may itself be substituted by  $C_1$ - $C_3$ alkyl,  $C_1$ - $C_3$ haloalkyl,  $C_1$ - $C_3$ alkoxy,  $C_1$ - $C_3$ haloalkoxy, halogen, cyano or by nitro;

 $R_6 \text{ is NR}_{14} \\ R_{15}, C_1 - C_6 \\ \text{alkoxy, } C_1 - C_6 \\ \text{haloalkoxy, } C_1 - C_6 \\ \text{alkyl, } C_1 - C_6 \\ \text{haloalkyl, } C_3 - C_6 \\ \text{alkenyl, } C_6 \\ \text{alkenyl, } C_6 - C_6 \\ \text{alkenyl, } C_6 - C_6 \\ \text{alken$ haloalkenyl,  $C_3$ - $C_6$ alkynyl,  $C_3$ - $C_6$ haloalkynyl,  $C_3$ - $C_6$ cycloalkyl or phenyl, wherein phenyl may itself be substituted by C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, halogen, cyano or by nitro;

R₇ and R₄₅ are each independently of the other C₁-C₃alkoxy, C₂-C₄alkoxycarbonyl, C₁-C₃alkylthio,  $C_1$ - $C_3$ alkylsulfinyl,  $C_1$ - $C_3$ alkylsulfonyl or phenyl, wherein phenyl may itself be substituted by  $C_1$ - $C_3$ alkyl,  $C_1$ - $C_3$ haloalkyl,  $C_1$ - $C_3$ alkoxy,  $C_1$ - $C_3$ haloalkoxy, halogen, cyano or by nitro;

 $R_8$ ,  $R_{10}$ ,  $R_{12}$ ,  $R_{14}$  and  $R_{46}$  are each independently of the others hydrogen or  $C_1$ - $C_6$ alkyl;  $R_9$ ,  $R_{11}$ ,  $R_{13}$ ,  $R_{15}$  and  $R_{47}$  are each independently of the others  $C_1$ - $C_6$ alkyl or  $C_1$ - $C_6$ alkoxy; Q is the group Q1

wherein R₁₆, R₁₇, R₁₈ and R₁₉ are each independently of the others hydrogen, hydroxy,

C₁-C₄alkyl, C₂-C₆alkenyl, C₂-C₆alkynyl, C₁-C₄alkoxycarbonyl, C₁-C₆alkylthio, C₁- $C_6$ alkylsulfinyl,  $C_1$ - $C_6$ alkylsulfonyl,  $C_1$ - $C_4$ alkyl- $NHS(O)_2$ ,  $C_1$ - $C_4$ haloalkyl, -NH- $C_1$ - $C_4$ alkyl, - $N(C_1-C_4alkyl)_2$ ,  $C_1-C_6alkoxy$ , cyano, nitro, halogen, or phenyl which may itself be substituted by C₁-C₄alkyl, C₁-C₄haloalkyl, C₁-C₄alkoxy, C₁-C₄haloalkoxy, C₁-C₄alkylcarbonyl, C₁-C4alkoxycarbonyl, amino, C1-C4alkylamino, di(C1-C4alkyl)amino, C1-C6alkylthio, C1-C4alkyl C6alkylsulfinyl, C1-C6alkylsulfonyl, C1-C4alkyl-S(O)2O, C1-C4haloalkylthio, C1-C₄haloalkylsulfinyl, C₁-C₄haloalkylsulfonyl, C₁-C₄haloalkyl-S(O)₂O, C₁-C₄alkyl-S(O)₂NH, C₁-C₄alkyl-S(O)₂N(C₁-C₄alkyl), halogen, nitro, COOH or by cyano; or two adjacent substituents out of R₁₆, R₁₇, R₁₈ and R₁₉ form a C₂-C₆alkylene bridge; R₂₀ is hydroxy, O⁻M⁺, halogen, C₁-C₁₂alkoxy, C₁-C₁₂alkylcarbonyloxy, C₂-C₄alkenylcarbonyloxy, C₃-C₆cycloalkylcarbonyloxy, C₁-C₁₂alkoxycarbonyloxy, C₁-C₁₂alkylcarbonyloxy,  $R_{21}R_{22}N-C(O)O$ ,  $C_1-C_{12}$ alkylthio,  $C_1-C_{12}$ alkylsulfinyl,  $C_1-C_{12}$ alkylsulfonyl,  $C_1-C_4$ haloalkylthio, C₁-C₄haloalkylsulfinyl, C₁-C₄haloalkylsulfonyl, C₂-C₁₂alkenylthio, C₂-C₁₂alkenylsulfinyl, C₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁₂-C₁ alkenylsulfonyl, C2-C12haloalkenylthio, C2-C12haloalkenylsulfinyl, C2-C12haloalkenylsulfonyl, C₂-C₁₂alkynylthio, C₂-C₁₂alkynylsulfinyl, C₂-C₁₂alkynylsulfonyl, C₁-C₄alkyl-S(O)₂O,  $phenyl-S(O)_2O,\ (C_1-C_4alkoxy)_2P(O)O,\ C_1-C_4alkyl(C_1-C_4alkoxy)P(O)O,\ H(C_1-C_4alkoxy)P(O)O,\ H(C_1-C_4alkoxy)P(O)O,\$ C₁-C₁₂-alkyl-S(CO)O, benzyloxy, phenoxy, phenylthio, phenylsulfinyl or phenylsulfonyl, wherein the phenyl group may itself be substituted by C₁-C₄alkyl, C₁-C₄haloalkyl, C₁-C4alkoxy, C1-C4haloalkoxy, C1-C4alkylcarbonyl, C1-C4alkoxycarbonyl, C1-C4alkylamino, di(C1-C₄alkyl)amino, C₁-C₄alkylthio, C₁-C₄alkylsulfinyl, C₁-C₄alkylsulfonyl, C₁-C₄alkyl-S(O)₂O, C₁-C₄haloalkylthio, C₁-C₄haloalkylsulfinyl, C₁-C₄haloalkylsulfonyl, C₁-C₄haloalkyl-S(O)₂O, C₁-C₄alkyl-S(O)₂NH, C₁-C₄alkyl-S(O)₂N(C₁-C₄alkyl), halogen, nitro or by cyano; and R₂₁ and R₂₂ are each independently of the other hydrogen or C₁-C₄alkyl; or is the group Q2

wherein  $R_{23}$  is hydroxy,  $O^{\text{M}^{+}}$ , halogen,  $C_1\text{-}C_{12}$ alkoxy,  $C_1\text{-}C_{12}$ alkylcarbonyloxy,  $C_2\text{-}C_4\text{-}$ alkenylcarbonyloxy,  $C_3\text{-}C_6\text{cycloalkylcarbonyloxy}$ ,  $C_1\text{-}C_{12}$ alkoxycarbonyloxy,  $C_1\text{-}C_{12}$ alkylcarbonyloxy,  $C_1\text{-}C_{12}$ alkylcarbonyloxy,  $C_1\text{-}C_{12}$ alkylcarbonyloxy,  $C_1\text{-}C_1$ alkylsulfinyl,  $C_1\text{-}C_1$ alkylsulfinyl,  $C_1\text{-}C_1$ alkylsulfinyl,  $C_1\text{-}C_1$ alkylsulfinyl,  $C_2\text{-}C_1$ alkenylsulfinyl,  $C_2\text{-}C_1$ alkenylsulfinyl,  $C_2\text{-}C_1$ alkenylsulfinyl,  $C_2\text{-}C_1$ alkenylsulfinyl,  $C_2\text{-}C_1$ alkenylsulfinyl,  $C_2\text{-}C_1$ alkenylsulfinyl,  $C_2\text{-}C_1$ alkynylsulfinyl,  $C_2\text{-}C_1$ alkynylsulfinyl,  $C_2\text{-}C_1$ alkynylsulfinyl,  $C_2\text{-}C_1$ alkyl-S(O)2O, phenyl-S(O)2O, ( $C_1\text{-}C_4$ alkoxy)2P(O)O,  $C_1\text{-}C_4$ alkyl( $C_1\text{-}C_4$ alkoxy)P(O)O,  $C_1\text{-}C_4$ alkoxy)P(O)O,  $C_1\text{-}C_4$ alkoxy)P(O)O,  $C_1\text{-}C_4$ alkoxy)P(O)O,  $C_1\text{-}C_4$ alkoxy,  $C_1\text{-}C_4$ alkoxy,  $C_1\text{-}C_4$ alkylcarbonyl,  $C_1\text{-}C_4$ alkoxycarbonyl,  $C_1\text{-}C_4$ alkylamino, di( $C_1\text{-}C_4$ alkyl)amino,  $C_1\text{-}C_4$ alkylthio,  $C_1\text{-}C_4$ alkylsulfinyl,  $C_1\text{-}C_4$ alkylsulfonyl,  $C_1\text{-}C_4$ alkyl-S(O)2O,  $C_1\text{-}$ 

 $R_{24}$  and  $R_{25}$  are each independently of the other hydrogen or  $C_1$ - $C_4$ alkyl; and Y is oxygen, sulfur, a chemical bond or a  $C_1$ - $C_4$ alkylene bridge; or is the group  $Q_3$ 

wherein  $R_{44}$ ,  $R_{37}$ ,  $R_{38}$  and  $R_{39}$  are each independently of the others hydrogen,  $C_1\text{-}C_6$ alkyl,  $C_1\text{-}C_6$ alkyl,  $C_2\text{-}C_6$ alkenyl,  $C_2\text{-}C_6$ alkynyl,  $C_1\text{-}C_6$ alkoxycarbonyl,  $C_1\text{-}C_6$ alkylthio,  $C_1\text{-}C_6$ alkylsulfonyl,  $C_1\text{-}C_6$ alkyl-NHS(O)2,  $C_1\text{-}C_6$ alkylamino, di( $C_1\text{-}C_6$ alkyl)amino, hydroxy,  $C_1\text{-}C_6$ alkoxy,  $C_3\text{-}C_6$ alkenyloxy,  $C_3\text{-}C_6$ alkynyloxy, hydroxy- $C_1\text{-}C_6$ alkyl,  $C_1\text{-}C_4$ alkylsulfonyloxy- $C_1\text{-}C_6$ alkyl, tosyloxy- $C_1\text{-}C_6$ alkyl, halogen, cyano, nitro, phenyl, or phenyl substituted by  $C_1\text{-}C_4$ alkyl,  $C_1\text{-}C_4$ haloalkyl,  $C_1\text{-}C_4$ alkoxy,  $C_1\text{-}C_4$ haloalkoxy,  $C_1\text{-}C_4$ alkylcarbonyl,  $C_1\text{-}C_4$ alkoxycarbonyl, amino,  $C_1\text{-}C_4$ alkylamino, di( $C_1\text{-}C_4$ alkyl)amino,  $C_1\text{-}C_6$ alkylthio,  $C_1\text{-}C_6$ alkylsulfinyl,  $C_1\text{-}C_6$ alkylsulfonyl,  $C_1\text{-}C_4$ alkyl-S(O)2O,  $C_1\text{-}C_6$ haloalkylthio,  $C_1\text{-}C_6$ alkylsulfinyl,  $C_1\text{-}C_6$ haloalkylsulfinyl,  $C_1\text{-}C_6$ haloalkylsulfinyl,  $C_1\text{-}C_6$ alkylsulfinyl,  $C_1\text{-}C_6$ alkylsulfinyl-N( $C_1\text{-}C_4$ alkyl),  $C_1\text{-}C_6$ alkylsulfinyl-N( $C_1\text{-}C_4$ alkyl),  $C_1\text{-}C_6$ alkylsulfinyl-N( $C_1\text{-}C_4$ alkyl),  $C_1\text{-}C_6$ alkylsulfinyl-N( $C_1\text{-}C_4$ alkyl), halogen, nitro, COOH or by cyano; or adjacent  $C_4$ and  $C_6$ alkylene;

W is oxygen, sulfur, sulfinyl, sulfonyl, -CR₄₁R₄₂-, -C(O)- or -NR₄₃-; R₄₁ is hydrogen, C₁-C₄alkyl, C₁-C₄haloalkyl, C₁-C₄alkoxy-C₁-C₄alkyl, C₁-C₄alkylthio-C₁-C₄alkyl, C₁-C₄alkylcarbonyloxy-C₁-C₄alkyl, C₁-C₄alkylsulfonyloxy-C₁-C₄alkyl, tosyloxy-C₁-C₄alkyl, di(C₁-C₃alkoxyalkyl)methyl, di(C₁-C₃alkylthioalkyl)methyl, (C₁-C₃alkoxyalkyl)-(C₁-C₃alkylthioalkyl)methyl, C₃-C₅oxacycloalkyl, C₃-C₅thiacycloalkyl, C₃-C₄dioxacycloalkyl, C₃-C₅oxacycloalkyl, C₅-C₅oxacycloalkyl, C₅-C₅oxacycloalkyl, C₅-C₅oxacycloalkyl, C₅-C₅oxacycloalkyl, C₅-C₅oxacycloalkyl, C₅-C₅oxacycloalkyl, C₅-C₅oxacycloalkyl, C₅-C₅oxacycloalkyl, C₅-C₅oxacycloalkyl, C₄dithiacycloalkyl, C₃-C₄oxathiacycloalkyl, formyl, C₁-C₄alkoxycarbonyl, or phenyl which may itself be substituted by C₁-C₄alkyl, C₁-C₄haloalkyl, C₁-C₄alkoxy, C₁-C₄haloalkoxy, C₁-C4alkylcarbonyl, C1-C4alkoxycarbonyl, amino, C1-C4alkylamino, di(C1-C4alkyl)amino, C1-C₄alkylthio, C₁-C₄alkylsulfinyl, C₁-C₄alkylsulfonyl, C₁-C₄alkyl-S(O)₂O, C₁-C₄haloalkylthio, C₁- $C_4$ haloalkylsulfinyl,  $C_1$ - $C_4$ haloalkylsulfonyl,  $C_1$ - $C_4$ haloalkyl- $S(O)_2O$ ,  $C_1$ - $C_4$ alkyl- $S(O)_2NH$ ,  $C_1$ - $C_6$ alkylthio- $N(C_1-C_4$ alkyl),  $C_1-C_6$ alkylsulfinyl- $N(C_1-C_4$ alkyl),  $C_1-C_6$ alkylsulfonyl- $N(C_1-C_4$ alkyl), halogen, nitro, COOH or by cyano; or R₄₂ together with R₃₉ is C₁-C₆alkylene; R₄₂ is hydrogen, C₁-C₄alkyl or C₁-C₄haloalkyl; R₄₀ is hydroxy, O⁻M⁺, halogen, C₁-C₁₂alkoxy, C₁-C₁₂alkylcarbonyloxy, C₂-C₄alkenylcarbonyloxy, C₃-C₆cycloalkylcarbonyloxy, C₁-C₁₂alkoxycarbonyloxy, C₁-C₁₂alkylcarbonyloxy,  $R_{96}R_{97}N-C(0)O$ ,  $C_1-C_{12}$ alkylthio,  $C_1-C_{12}$ alkylsulfinyl,  $C_1-C_{12}$ alkylsulfinyl,  $C_1-C_{12}$ alkylthio, C₁-C₄haloalkylsulfinyl, C₁-C₄haloalkylsulfonyl, C₂-C₁₂alkenylthio, C₂-C₁₂alkenylsulfinyl, C₂-C₁₂alkenylsulfonyl,  $C_2$ - $C_{12}$ haloalkenylthio,  $C_2$ - $C_{12}$ haloalkenylsulfinyl,  $C_2$ - $C_{12}$ haloalkenylsulfonyl,  $C_2$ - $C_{12}$ alkynylthio,  $C_2$ - $C_{12}$ alkynylsulfinyl,  $C_2$ - $C_{12}$ alkynylsulfonyl,  $C_1$ - $C_4$ alkyl- $S(O)_2O_1$ phenyl-S(O)₂O,  $(C_1-C_4a|koxy)_2P(O)O$ ,  $C_1-C_4a|ky|(C_1-C_4a|koxy)P(O)O$ ,  $H(C_1-C_4a|koxy)P(O)O$ . C₁-C₁₂-alkyl-S(CO)O, benzyloxy, phenoxy, phenylthio, phenylsulfinyl or phenylsulfonyl, wherein the phenyl group may itself be substituted by C1-C4alkyl, C1-C4haloalkyl, C1-C₄alkoxy, C₁-C₄haloalkoxy, C₁-C₄alkylcarbonyl, C₁-C₄alkoxycarbonyl, C₁-C₄alkylamino, di(C₁-C4alkyl)amino, C1-C4alkylthio, C1-C4alkylsulfinyl, C1-C4alkylsulfonyl, C1-C4alkyl-S(O)2O, C1- $C_4$ haloalkylthio,  $C_1$ - $C_4$ haloalkylsulfinyl,  $C_1$ - $C_4$ haloalkylsulfonyl,  $C_1$ - $C_4$ haloalkyl- $S(O)_2O$ ,  $C_1$ -C₄alkyl-S(O)₂NH, C₁-C₄alkyl-S(O)₂N(C₁-C₄alkyl), halogen, nitro or by cyano; R₉₆ and R₉₇ are each independently of the other hydrogen or C₁-C₄alkyl; R₄₃ is hydrogen, C₁-C₄alkyl, C₁-C₄alkoxycarbonyl, or phenyl which may itself be substituted by C₁-C₄alkyl, C₁-C₄haloalkyl, C₁-C₄alkoxy, C₁-C₄haloalkoxy, C₁-C₄alkylcarbonyl, C₁-C4alkoxycarbonyl, C1-C4alkylamino, di(C1-C4alkyl)amino, C1-C4alkylthio, C1-C4alkylsulfinyl, C₁-C₄alkylsulfonyl, C₁-C₄alkyl-S(O)₂O, C₁-C₄haloalkylthio, C₁-C₄haloalkylsulfinyl, C₁-C4haloalkylsulfonyl, C1-C4haloalkyl-S(O)2O, C1-C4alkyl-S(O)2NH, C1-C4alkyl-S(O)2N(C1-C₄alkyl), halogen, nitro or by cyano; or is the group Q4

wherein R₃₀ hydroxy, O'M⁺, halogen, C₁-C₁₂alkoxy, C₁-C₁₂alkylcarbonyloxy, C₂-C₄alkenylcarbonyloxy,  $C_3$ - $C_6$ cycloalkylcarbonyloxy,  $C_1$ - $C_{12}$ alkoxycarbonyloxy,  $C_1$ - $C_{12}$ alkylcarbonyloxy,  $R_{31}R_{32}N-C(O)O,\ C_1-C_{12}alkylthio,\ C_1-C_{12}alkylsulfinyl,\ C_1-C_{12}alkylsulfonyl,\ C_1-C_4haloalkylthio,\ C_1-C_{12}alkylsulfonyl,\ C_1-C_4haloalkylthio,\ C_1-C_4haloal$ C₁-C₄haloalkylsulfinyl, C₁-C₄haloalkylsulfonyl, C₂-C₁₂alkenylthio, C₂-C₁₂alkenylsulfinyl, C₂-C₁₂alkenylsulfonyl, C2-C12haloalkenylthio, C2-C12haloalkenylsulfinyl, C2-C12haloalkenylsulfonyl,  $C_2$ - $C_{12}$ alkynylthio,  $C_2$ - $C_{12}$ alkynylsulfinyl,  $C_2$ - $C_{12}$ alkynylsulfonyl,  $C_1$ - $C_4$ alkyl- $S(O)_2O_1$ phenyl-S(O)₂O, (C₁-C₄alkoxy)₂P(O)O, C₁-C₄alkyl(C₁-C₄alkoxy)P(O)O, H(C₁-C₄alkoxy)P(O)O, C₁-C₁₂-alkyl-S(CO)O, benzyloxy, phenoxy, phenylthio, phenylsulfinyl or phenylsulfonyl. wherein the phenyl group may itself be substituted by C1-C4alkyl, C1-C4haloalkyl, C1-C4alkoxy, C1-C4alkylcarbonyl, C1-C4alkylcarbonyl, C1-C4alkylamino, di(C1-C4alkoxycarbonyl, C1-C4alkylamino, di(C1-C4alkoxycarbonyl, C1-C4alkylamino, di(C1-C4alkoxycarbonyl, C1-C4alkylamino, di(C1-C4alkoxycarbonyl, C1-C4alkylamino, di(C1-C4alkoxycarbonyl, C1-C4alkylamino, di(C1-C4alkoxycarbonyl, C1-C4alkylamino, di(C1-C4alkylamino, di(C1-C4alkyl C4alkyl)amino, C1-C4alkylthio, C1-C4alkylsulfinyl, C1-C4alkylsulfonyl, C1-C4alkyl-S(O)2O, C1- $C_4$ haloalkylsulfinyl,  $C_1$ - $C_4$ haloalkylsulfinyl,  $C_1$ - $C_4$ haloalkylsulfonyl,  $C_1$ - $C_4$  $C_4$ alkyl- $S(O)_2NH$ ,  $C_1$ - $C_4$ alkyl- $S(O)_2N(C_1$ - $C_4$ alkyl), halogen, nitro or by cyano; and  $R_{31}$  and  $R_{32}$  are each independently of the other hydrogen or  $C_1$ - $C_4$ alkyl;  $R_{33}$  and  $R_{34}$  are each independently of the other hydrogen, hydroxy,  $C_1$ - $C_4$ alkyl,  $C_2$ - $C_6$ alkenyl, C₂-C₆alkynyl, C₁-C₄alkoxycarbonyl, C₁-C₆alkylthio, C₁-C₆alkylsulfonyl,  $C_1$ - $C_4$ alkyl-NHS(O)₂,  $C_1$ - $C_4$ haloalkyl, -NH- $C_1$ - $C_4$ alkyl, -N( $C_1$ - $C_4$ alkyl)₂,  $C_1$ - $C_6$ alkoxy, cyano, nitro, halogen, or phenyl which may itself be substituted by C₁-C₄alkyl, C₁-C₄haloalkyl, C₁-C₄alkoxy, C₁-C₄haloalkoxy, C₁-C₄alkylcarbonyl, C₁-C₄alkoxycarbonyl, amino, C₁-C₄alkylamino,  $di(C_1-C_4alkyl)amino, C_1-C_6alkylthio, C_1-C_6alkylsulfinyl, C_1-C_6alkylsulfonyl, C_1-C_4alkyl-S(O)_2O$ , C₁-C₄haloalkylthio, C₁-C₄haloalkylsulfinyl, C₁-C₄haloalkylsulfonyl, C₁-C₄haloalkyl-S(O)₂O, C₁-C₄alkyl-S(O)₂NH, C₁-C₄alkyl-S(O)₂N(C₁-C₄alkyl), halogen, nitro, COOH or by cyano; or R₃₃ and R₃₄ together form a C₂-C₆alkylene bridge; and R₃₅ is hydrogen, C₁-C₄alkyl, C₁-C₄alkoxycarbonyl, or phenyl which may itself be substituted by C₁-C₄alkyl, C₁-C₄haloalkyl, C₁-C₄alkoxy, C₁-C₄haloalkoxy, C₁-C₄alkylcarbonyl, C₁- $C_4$ alkoxycarbonyl, amino,  $C_1$ - $C_4$ alkylamino, di( $C_1$ - $C_4$ alkyl)amino,  $C_1$ - $C_4$ alkylthio,  $C_1$ -C4alkylsulfinyl, C1-C4alkylsulfonyl, C1-C4alkyl-S(O)2O, C1-C4haloalkylthio, C1- $C_4$ haloalkylsulfinyl,  $C_1$ - $C_4$ haloalkylsulfonyl,  $C_1$ - $C_4$ haloalkyl- $S(O)_2O$ ,  $C_1$ - $C_4$ alkyl- $S(O)_2NH$ ,  $C_1$ -C4alkyl-S(O)2N(C1-C4alkyl), halogen, nitro, COOH or by cyano;

or is the group Q₅

wherein Z is sulfur, SO or SO₂;

 $R_{01} \text{ is hydrogen, } C_1-C_8 \text{alkyl, } C_1-C_8 \text{alkyl substituted by halogen, } C_1-C_4 \text{alkoxy, } C_1-C_4 \text{alkylthio, } C_1-C_4 \text{alkylsulfinyl, hydroxy, cyano, nitro, } -CHO, -CO_2R_{02}, -COR_{03}, -COSR_{04}, -NR_{05}R_{06}, CONR_{036}R_{037}, \text{ or by phenyl which may itself be substituted by } C_1-C_4 \text{alkyl, } C_1-C_6 \text{haloalkyl, } C_1-C_4 \text{alkoxy, } C_1-C_4 \text{haloalkoxy, } C_2-C_6 \text{alkenyl, } C_3-C_6 \text{alkynyl, } C_3-C_6 \text{alkynyloxy, halogen, nitro, cyano, } -COOH, COOC_1-C_4 \text{alkyl, } COOphenyl, \\ C_1-C_4 \text{alkoxy, phenoxy, } (C_1-C_4 \text{alkoxy})-C_1-C_4 \text{alkyl, } (C_1-C_4 \text{alkylthio})-C_1-C_4 \text{alkyl, } (C_1-C_4 \text{alkylsulfinyl})-C_1-C_4 \text{alkyl, } NHSO_2-Dhenyl, \\ N(C_1-C_6 \text{alkyl})SO_2-C_1-C_4 \text{alkyl, } N(C_1-C_6 \text{alkyl})SO_2-Dhenyl, \\ N(C_1-C_6 \text{alkyl})SO_2-C_1-C_4 \text{alkyl, } N(C_1-C_6 \text{alkyl})SO_2-Dhenyl, \\ N(C_2-C_6 \text{alkenyl})SO_2-Dhenyl, \\ N(C_3-C_7-C_7 \text{cycloalkyl})SO_2-Dhenyl, \\ N(C_3-C_7-C_7 \text{cycloalkyl})SO_2-Dhenyl, \\ N(C_3-C_7-C_4 \text{alkyl, } N(C_3-C_7 \text{cycloalkyl})SO_2-Dhenyl, \\ N(Dhenyl)SO_2-Dhenyl, \\ OSO_2-C_1-C_4 \text{alkyl, } CONR_{025}R_{026}, OSO_2-C_1-C_4 \text{haloalkyl, } OSO_2-Dhenyl, \\ N_1-C_4 \text{alkylthio, } C_1-C_4 \text{alkylthio, phenylthio, } C_1-C_4 \text{alkylsulfinyl, } C_1-C_4 \text{alkylenephenyl, } \\ N_1-C_4 \text{alkylthio, } C_1-C_4 \text{alkylsulfinyl, } C_1-C_4 \text{alkylsulfinyl, } Dhenylsulfinyl, \\ N_1-C_4 \text{alkylsulfinyl, } C_1-C_4 \text{alkylsulfinyl, } C_1-C_4 \text{alkylsulfinyl, } Dhenylsulfinyl, \\ N_1-C_4 \text{alkylsulfinyl, } C_1-C_4 \text{alkylsulfinyl, } C_1-C_4 \text{alkylsulfinyl, } Dhenylsulfinyl, \\ N_1-C_4 \text{alkylsulfinyl, } C_1-C_4 \text{alkylsulfinyl, } C_1-C_4 \text{alkylsulfinyl, } Dhenylsulfinyl, \\ N_1-C_4 \text{alkylsulfinyl,$ 

or  $R_{01}$  is  $C_2$ - $C_8$ alkenyl or  $C_2$ - $C_8$ alkenyl substituted by halogen,  $C_1$ - $C_4$ alkoxy,  $C_1$ - $C_4$ alkylthio,  $C_1$ - $C_4$ alkylsulfinyl,  $-CONR_{032}R_{033}$ , cyano, nitro, -CHO,  $-CO_2R_{038}$ ,  $-COR_{039}$ , -COS- $C_1$ - $C_4$ alkyl,  $-NR_{034}R_{035}$ , or by phenyl which may itself be substituted by  $C_1$ - $C_4$ alkyl,  $C_1$ - $C_6$ haloalkyl,  $C_1$ - $C_4$ alkoxy,  $C_1$ - $C_4$ haloalkoxy,  $C_2$ - $C_6$ alkenyl,  $C_3$ - $C_6$ alkynyl,  $C_3$ - $C_6$ alkenyloxy,  $C_3$ - $C_6$ alkynyloxy, halogen, nitro, cyano, -COOH,  $COOC_1$ - $C_4$ alkyl, COOphenyl,  $C_1$ - $C_4$ alkoxy, phenoxy,  $(C_1$ - $C_4$ alkoxy)- $C_1$ - $C_4$ alkyl,  $(C_1$ - $C_4$ alkylthio)- $C_1$ - $C_4$ alkyl,  $(C_1$ - $C_4$ alkylsulfinyl)- $C_1$ - $C_4$ alkyl,  $(C_1$ - $C_4$ alkylsulfinyl)- $C_1$ - $C_4$ alkyl,  $(C_1$ - $C_4$ alkylsulfinyl)- $C_1$ - $C_4$ alkyl,  $(C_1$ - $C_6$ alkyl) $(C_1$ - $C_6$ alkyl) $(C_2$ - $(C_6$ alkenyl) $(C_2$ - $(C_6$ alkenyl) $(C_3$ - $(C_6$ alkyl) $(C_3$ - $(C_6$ alkyl

or R₀₁ is C₃-C₆alkynyl or C₃-C₆alkynyl substituted by halogen, C₁-C₄haloalkyl, cyano, -CO₂R₀₄₄, or by phenyl which may itself be substituted by C₁-C₄alkyl, C₁-C₆haloalkyl, C₁-C₄alkoxy,  $C_1$ - $C_4$ haloalkoxy,  $C_2$ - $C_6$ alkenyl,  $C_3$ - $C_6$ alkynyl,  $C_3$ - $C_6$ alkynyloxy,  $C_3$ - $C_6$ alkynyloxy, halogen, nitro, cyano, -COOH, COOC1-C4alkyl, COOphenyl, C1-C4alkoxy, phenoxy, (C1-C4 $alkoxy)-C_1-C_4\\alkyl,\ (C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1-C_4\\alkyl-C_1$ sulfonyl)- $C_1$ - $C_4$ alkyl, NHSO₂- $C_1$ - $C_4$ alkyl, NHSO₂-phenyl, N( $C_1$ - $C_6$ alkyl)SO₂- $C_1$ - $C_4$ alkyl, NHSO₂-phenyl, N( $C_1$ - $C_6$ alkyl)SO₂- $C_1$ - $C_4$ alkyl, NHSO₂- $C_1$ - $C_5$ alkyl)  $N(C_1-C_6alkyl)SO_2$ -phenyl,  $N(C_2-C_6alkenyl)SO_2-C_1-C_4alkyl$ ,  $N(C_2-C_6alkenyl)SO_2$ -phenyl, alkyl, N(C₃-C₇cycloalkyl)SO₂-phenyl, N(phenyl)SO₂-C₁-C₄alkyl, N(phenyl)SO₂-phenyl,  $OSO_2-C_1-C_4 alkyl,\ CONR_{028}R_{029},\ OSO_2-C_1-C_4 haloalkyl,\ OSO_2-phenyl,\ C_1-C_4 alkylthio,\ C_1-C_4-c_4 haloalkyl,\ OSO_2-c_5 haloalkyl,\ C_1-C_4 haloalkyl,\ C_1-C_5 haloalk$ haloalkylthio, phenylthio,  $C_1$ - $C_4$ alkylsulfonyl,  $C_1$ - $C_4$ haloalkylsulfonyl, phenylsulfonyl,  $C_1$ - $C_4$ alkylsulfinyl, C₁-C₄haloalkylsulfinyl, phenylsulfinyl, C₁-C₄alkylenephenyl or by -NR₀₃₁CO₂R₀₃₀; or  $R_{01}$  is  $C_3$ - $C_7$ cycloalkyl or  $C_3$ - $C_7$ cycloalkyl substituted by  $C_1$ - $C_4$ alkyl,  $C_1$ - $C_4$ alkoxy,  $C_1$ - $C_4$ alkylthio,  $C_1$ - $C_4$ alkylsulfinyl,  $C_1$ - $C_4$ alkylsulfonyl, or by phenyl which may itself be substituted by halogen, nitro, cyano, C₁-C₄alkoxy, C₁-C₄haloalkoxy, C₁-C₄alkylthio, C₁-C₄haloalkylthio, C₁-C₄alkyl or by C₁-C₄haloalkyl; or  $R_{01}$  is  $C_1$ - $C_4$ alkylene- $C_3$ - $C_7$ cycloalkyl, phenyl, or phenyl substituted by  $C_1$ - $C_4$ alkyl,  $C_1$ - $C_6$ halo-

alkyl,  $C_1$ - $C_4$ alkoxy,  $C_1$ - $C_4$ haloalkoxy,  $C_2$ - $C_6$ alkenyl,  $C_3$ - $C_6$ alkenyl,  $C_3$ - $C_6$ alkenyloxy,  $C_3$ - $C_6$ - $C_6$ alkenyloxy,  $C_3$ - $C_6$ -Calkynyloxy, halogen, nitro, cyano, -COOH, COOC₁-C₄alkyl, COOphenyl, C₁-C₄alkoxy, phenoxy,  $(C_1-C_4alkoxy)-C_1-C_4alkyl$ ,  $(C_1-C_4alkyl+1)-C_1-C_4alkyl$ ,  $(C_1-C_4alkyl+1)-C_1-C_4alkyl$ ,  $(C_1-C_4alkyl+1)-C_1-C_4alkyl$ ,  $(C_1-C_4alkyl+1)-C_1-C_4alkyl$ alkyl,  $N(C_1-C_6alkyl)SO_2$ -phenyl,  $N(C_2-C_6alkenyl)SO_2-C_1-C_4alkyl$ ,  $N(C_2-C_6alkenyl)SO_2$ -phenyl,  $N(C_3-C_6$ alkynyi) $SO_2-C_1-C_4$ alkyl,  $N(C_3-C_6$ alkynyi) $SO_2$ -phenyl,  $N(C_3-C_7$ cycloalkyl) $SO_2-C_1-C_4$ alkyl, N(C₃-C₇cycloalkyl)SO₂-phenyl, N(phenyl)SO₂-C₁-C₄alkyl, N(phenyl)SO₂-phenyl,  $OSO_2-C_1-C_4\\ alkyl,\ CONR_{045}\\ R_{046},\ OSO_2-C_1-C_4\\ haloalkyl,\ OSO_2-phenyl,\ C_1-C_4\\ alkylthio,\ C_1-C_4-C_4\\ haloalkyl,\ OSO_2-phenyl,\ C_1-C_4\\ haloalkyl,\ C_1-C_4\\ haloalkyl$ haloalkylthio, phenylthio,  $C_1$ - $C_4$ alkylsulfonyl,  $C_1$ - $C_4$ haloalkylsulfonyl, phenylsulfonyl,  $C_1$ - $C_4$ alkylsulfinyl,  $C_1$ - $C_4$ haloalkylsulfinyl, phenylsulfinyl or by -NR₀₄₈CO₂R₀₄₇; or  $R_{01}$  is  $C_1\text{-}C_4$ alkylenephenyl,  $COR_{07}$  or from 4- to 6-membered heterocyclyl;  $R_{02}$ ,  $R_{038}$ ,  $R_{044}$  and  $R_{086}$  are each independently of the others hydrogen,  $C_1$ - $C_4$ alkyl, phenyl, or phenyl substituted by  $C_1$ - $C_4$ alkyl,  $C_1$ - $C_6$ haloalkyl,  $C_1$ - $C_4$ alkoxy,  $C_1$ - $C_4$ haloalkoxy,  $C_2$ - $C_6$ alkenyl,  $C_3$ - $C_6$ alkynyl,  $C_3$ - $C_6$ alkenyloxy,  $C_3$ - $C_6$ alkynyloxy, halogen, nitro, cyano, -COOH, COOC₁- $C_4$ alkyl, COOphenyl,  $C_1$ - $C_4$ alkoxy, phenoxy,  $(C_1$ - $C_4$ alkoxy)- $C_1$ - $C_4$ alkylthio)- $C_1$ - $C_4$ alkyl, ( $C_1$ - $C_4$ alkylsulfinyl)- $C_1$ - $C_4$ alkyl, ( $C_1$ - $C_4$ alkylsulfonyl)- $C_1$ - $C_4$ alkyl, NHSO₂- $C_1$ - $C_4$ alkyl,  $NHSO_2-phenyl,\ N(C_1-C_6alkyl)SO_2-C_1-C_4alkyl,\ N(C_1-C_6alkyl)SO_2-phenyl,\ N(C_2-C_6alkenyl)-C_6alkyl)SO_2-phenyl,\ N(C_3-C_6alkyl)SO_2-phenyl,\ N(C_3-C_6$ 

 $SO_2-C_1-C_4$ alkyl,  $N(C_2-C_6$ alkenyl) $SO_2$ -phenyl,  $N(C_3-C_6$ alkynyl) $SO_2-C_1-C_4$ alkyl,  $N(C_3-C_6$ alkynyl) $SO_2$ -phenyl,  $N(C_3-C_7$ cycloalkyl) $SO_2-C_1-C_4$ alkyl,  $N(C_3-C_7$ cycloalkyl) $SO_2$ -phenyl, N(phenyl)SO₂-C₁-C₄alkyl, N(phenyl)SO₂-phenyl, OSO₂-C₁-C₄alkyl, CONR₀₄₉R₀₅₀, OSO₂-C₁-C₄haloalkyl, OSO₂-phenyl, C₁-C₄alkylthio, C₁-C₄haloalkylthio, phenylthio, C₁-C4alkylsulfonyl, C1-C4haloalkylsulfonyl, phenylsulfonyl, C1-C4alkylsulfinyl, C1-C₄haloalkylsulfinyl, phenylsulfinyl, -C₁-C₄-alkylphenyl or by -NR₀₅₂CO₂R₀₅₃;  $R_{03}$ ,  $R_{039}$  and  $R_{067}$  are each independently of the others  $C_1$ - $C_4$ alkyl, phenyl, or phenyl substituted by C₁-C₄alkyl, C₁-C₆haloalkyl, C₁-C₄alkoxy, C₂-C₆haloalkoxy, C₂-C₆alkenyl, C₃-C₆alkynyl, C₃-C₆alkenyloxy, C₃-C₆alkynyloxy, halogen, nitro, cyano, -COOH, COOC₁-C₄alkyl, COOphenyl,  $C_1$ - $C_4$ alkoxy, phenoxy,  $(C_1$ - $C_4$ alkoxy)- $C_1$ - $C_4$ alkyl,  $(C_1$ - $C_4$  $(C_1-C_4$ alkylsulfinyl)- $C_1-C_4$ alkyl,  $(C_1-C_4$ alkylsulfonyl)- $C_1-C_4$ alkyl, NHSO₂- $C_1-C_4$ alkyl, NHSO₂-phenyl, N(C₁-C₆alkyl)SO₂-C₁-C₄alkyl, N(C₁-C₆alkyl)SO₂-phenyl, N(C₂-C₆alkenyl)- $SO_2-C_1-C_4$ alkyl,  $N(C_2-C_6$ alkenyl) $SO_2$ -phenyl,  $N(C_3-C_6$ alkynyl) $SO_2-C_1-C_4$ alkyl,  $N(C_3-C_6$ alkynyl)-SO₂-phenyl, N(C₃-C₇cycloalkyl)SO₂-C₁-C₄alkyl, N(C₃-C₇cycloalkyl)SO₂-phenyl, N(phenyl)-SO₂-C₁-C₄alkyl, N(phenyl)SO₂-phenyl, OSO₂-C₁-C₄alkyl, CONR₀₆₈R₀₅₄, OSO₂-C₁-C₄haloalkyl, OSO₂-phenyl, C₁-C₄alkylthio, C₁-C₄haloalkylthio, phenylthio, C₁-C₄alkylsulfonyl, C₁-C₄haloalkylsulfonyl, phenylsulfonyl, C₁-C₄alkylsulfinyl, C₁-C₄haloalkylsulfinyl, phenylsulfinyl, -(CH₂)_t-phenyl or by -NR₀₅₆CO₂R₀₅₅;

R₀₄ is C₁-C₄alkyl;

R₀₅ is hydrogen, C₁-C₄alkyl, C₂-C₆alkenyl, C₃-C₆alkynyl, C₃-C₇cycloalkyl, phenyl, or phenyl substituted by C₁-C₄alkyl, C₁-C₆haloalkyl, C₁-C₄alkoxy, C₁-C₄haloalkoxy, C₂-C₆alkenyl, C₃-C₆alkynyl, C₃-C₆alkenyloxy, C₃-C₆alkynyloxy, halogen, nitro, cyano, -COOH, COOC₁-C₄alkyl, COOphenyl, C₁-C₄alkoxy, phenoxy, (C₁-C₄alkoxy)-C₁-C₄alkyl, (C₁-C₄alkylthio)-C₁-C₄alkyl, (C₁-C₄alkylsulfinyl)-C₁-C₄alkyl, NHSO₂-C₁-C₄alkyl, NHSO₂-phenyl, N(C₁-C₆alkyl)SO₂-C₁-C₄alkyl, N(C₁-C₆alkyl)SO₂-phenyl, N(C₂-C₆alkenyl)-SO₂-C₁-C₄alkyl, N(C₃-C₆alkenyl)SO₂-phenyl, N(C₃-C₆alkynyl)SO₂-phenyl, N(C₃-C₇cycloalkyl)SO₂-phenyl, N(C₃-C₇cycloalkyl)SO₂-phenyl, N(C₃-C₇cycloalkyl)SO₂-phenyl, N(C₃-C₇cycloalkyl)SO₂-C₁-C₄alkyl, N(C₃-C₇cycloalkyl)SO₂-phenyl, N(phenyl)SO₂-C₁-C₄alkyl, N(phenyl)-SO₂-C₁-C₄alkyl, N(C₃-C₇cycloalkyl)SO₂-phenyl, N(phenyl)SO₂-C₁-C₄alkyl, N(phenyl)-SO₂-phenyl, OSO₂-C₁-C₄alkyl, CONR₀₅₇R₀₅₈, OSO₂-C₁-C₄haloalkyl, OSO₂-phenyl, C₁-C₄alkyl-thio, C₁-C₄haloalkylthio, phenylthio, C₁-C₄alkylsulfinyl, C₁-C₄haloalkylsulfinyl, phenylsulfinyl, C₁-C₄alkylenephenyl or by -NR₀₆₀CO₂R₀₅₉;

 $R_{06}$  is hydrogen,  $C_1$ - $C_4$ alkyl,  $C_2$ - $C_6$ alkenyl,  $C_3$ - $C_6$ alkynyl,  $C_3$ - $C_7$ cycloalkyl, phenyl, or phenyl substituted by  $C_1$ - $C_4$ alkyl,  $C_1$ - $C_6$ haloalkyl,  $C_1$ - $C_4$ alkoxy,  $C_1$ - $C_4$ haloalkoxy,  $C_2$ - $C_6$ alkenyl,

 $C_3\text{-}C_6\text{alkynyl},\ C_3\text{-}C_6\text{alkenyloxy},\ C_3\text{-}C_6\text{alkynyloxy},\ \text{halogen, nitro, cyano, -COOH, COOC}_1\text{-}C_4\text{-}alkyl,\ COOphenyl},\ C_1\text{-}C_4\text{alkoxy},\ phenoxy},\ (C_1\text{-}C_4\text{alkoxy})\text{-}C_1\text{-}C_4\text{alkyl},\ (C_1\text{-}C_4\text{alkylthio})\text{-}C_1\text{-}C_4\text{-}alkyl},\ (C_1\text{-}C_4\text{alkylsulfinyl})\text{-}C_1\text{-}C_4\text{-}alkyl},\ (C_1\text{-}C_4\text{alkylsulfinyl})\text{-}C_1\text{-}C_4\text{alkyl},\ N(C_1\text{-}C_4\text{alkyl},\ N(C_1\text{-}C_4\text{alkyl},\ N(C_1\text{-}C_6\text{alkyl})\text{SO}_2\text{-}phenyl},\ N(C_2\text{-}C_6\text{alkenyl})\text{-}SO_2\text{-}phenyl},\ N(C_3\text{-}C_6\text{alkenyl})\text{-}SO_2\text{-}phenyl},\ N(C_3\text{-}C_6\text{alkynyl})\text{-}SO_2\text{-}phenyl},\ N(C_3\text{-}C_7\text{cycloalkyl})\text{-}SO_2\text{-}phenyl},\ N(C_3\text{-}C_7\text{cycloalkyl})\text{-}SO_2\text{-}phenyl},\ N(C_3\text{-}C_7\text{cycloalkyl})\text{-}SO_2\text{-}phenyl},\ N(C_3\text{-}C_7\text{cycloalkyl})\text{-}SO_2\text{-}phenyl},\ N(phenyl)\text{-}SO_2\text{-}phenyl},\ OSO_2\text{-}C_1\text{-}C_4\text{alkyl},\ N(phenyl)\text{-}SO_2\text{-}phenyl},\ N(phen$ 

R₀₇ is phenyl, C₁-C₄alkyl, C₁-C₄alkoxy or -NR₀₈R₀₉;

 $R_{08}$  and  $R_{09}$  are each independently of the other  $C_1$ - $C_4$ alkyl, phenyl, or phenyl substituted by halogen, nitro, cyano,  $C_1$ - $C_4$ alkyl,  $C_1$ - $C_4$ alkoxy,  $C_1$ - $C_4$ thioalkyl, - $CO_2R_{066}$ , - $COR_{067}$ ,  $C_1$ - $C_4$ -alkylsulfinyl or by  $C_1$ - $C_4$ haloalkyl; or  $R_{08}$  and  $R_{09}$  together form a 5- or 6-membered ring, which may be interrupted by oxygen,  $NR_{065}$  or by S;

 $R_{015}$ ,  $R_{031}$ ,  $R_{043}$ ,  $R_{048}$ ,  $R_{052}$ ,  $R_{056}$ ,  $R_{060}$  and  $R_{064}$  are each independently of the others hydrogen,  $C_1$ - $C_4$ alkyl,  $C_2$ - $C_6$ alkenyl,  $C_3$ - $C_6$ alkynyl or  $C_3$ - $C_7$ cycloalkyl;

 $R_{025}$ ,  $R_{026}$ ,  $R_{027}$ ,  $R_{028}$ ,  $R_{029}$ ,  $R_{030}$ ,  $R_{032}$ ,  $R_{033}$ ,  $R_{034}$ ,  $R_{035}$ ,  $R_{036}$ ,  $R_{037}$ ,  $R_{040}$ ,  $R_{041}$ ,  $R_{042}$ ,  $R_{045}$ ,  $R_{046}$ ,  $R_{047}$ ,  $R_{049}$ ,  $R_{050}$ ,  $R_{053}$ ,  $R_{054}$ ,  $R_{055}$ ,  $R_{057}$ ,  $R_{058}$ ,  $R_{059}$ ,  $R_{061}$ ,  $R_{062}$ ,  $R_{063}$ ,  $R_{065}$  and  $R_{068}$  are each independently of the others hydrogen,  $C_1$ - $C_4$ alkyl,  $C_2$ - $C_6$ alkenyl,  $C_3$ - $C_6$ alkynyl,  $C_3$ - $C_7$ cycloalkyl, phenyl, or phenyl substituted by halogen, nitro, cyano,  $C_1$ - $C_4$ alkoxy,  $C_1$ - $C_4$ haloalkylthio,  $C_1$ - $C_4$ -

 $R_{36} \text{ is } C_1\text{-}C_4\text{alkyl, } C_1\text{-}C_4\text{haloalkyl, } C_3\text{-}C_6\text{alkenyl, } C_3\text{-}C_6\text{haloalkenyl, } C_3\text{-}C_6\text{alkynyl, } C_3\text{-}C_6\text{alkynyl, } C_3\text{-}C_6\text{alkynyl, } C_3\text{-}C_6\text{cycloalkyl substituted by halogen, } C_1\text{-}C_4\text{alkyl, } C_1\text{-}C_4\text{haloalkenyl, } C_3\text{-}C_6\text{alkenyl, } C_3\text{-}C_6\text{haloalkenyl, } C_3\text{-}C_6\text{haloalkenyl, } C_3\text{-}C_6\text{haloalkenyl, } C_1\text{-}C_4\text{alkylsulfinyl, } C_1\text{-}C_4\text{alkylsulfinyl, } C_1\text{-}C_4\text{alkylsulfinyl, } C_1\text{-}C_4\text{alkylsulfinyl, } C_1\text{-}C_4\text{haloalkylthio, } C_1\text{-}C_4\text{haloalkylsulfinyl, }$ 

 $C_4$ haloalkylsulfinyl,  $C_1$ - $C_4$ haloalkylsulfonyl,  $C_1$ - $C_4$ alkylcarbonyl, di( $C_1$ - $C_4$ alkyl)amino,  $C_1$ - $C_4$ alkoxy,  $C_1$ - $C_4$ haloalkoxy,  $C_1$ - $C_4$ alkyl- $S(O)_2O$ ,  $C_1$ - $C_4$ haloalkyl- $S(O)_2O$ , or by phenyl which may itself be substituted by halogen,  $C_1$ - $C_4$ alkyl,  $C_1$ - $C_4$ haloalkyl,  $C_3$ - $C_6$ alkenyl,  $C_3$ - $C_6$ alkynyl, cyano, nitro or by COOH;

or an agronomically acceptable salt of such a compound, and

b) a synergistically effective amount of one or more compounds selected from a compound of formula 2.1

wherein  $R_{51}$  is  $CH_2$ -OMe, ethyl or hydrogen;  $R_{52}$  is hydrogen or  $R_{51}$  and  $R_{52}$  together are the group -CH=CH-CH=CH-; and a compound of formula 2.2

$$R_{53}$$
 $R_{55}$ 
 $CH_2CI$ 
 $R_{54}$ 
 $O$ 

wherein  $R_{53}$  is ethyl,  $R_{54}$  is methyl or ethyl and  $R_{55}$  is -CH(Me)-CH₂OMe, <S>-CH(Me)-CH₂OMe, CH₂OMe or CH₂O-CH₂CH₃; and a compound of formula 2.3

$$R_{56}$$
 $CH_2CI$ 
 $(2.3)$ 

wherein R₅₆ is CH(Me)-CH₂OMe or <S>CH(Me)-CH₂OMe; and a compound of formula 2.4

wherein  $R_{57}$  is chlorine, methoxy or methylthio,  $R_{58}$  is ethyl and  $R_{59}$  is ethyl, isopropyl,  $-C(CN)(CH_3)-CH_3$  or tert-butyl; and a compound of formula 2.5

wherein  $R_{60}$  is ethyl or n-propyl,  $R_{61}$  is  $COO^{-}1/2$   $Ca^{++}$ ,  $-CH_2$ -CH(Me)S- $CH_2CH_3$  or the group

and a compound of formula 2.6

wherein  $R_{62}$  is hydrogen, methoxy or ethoxy,  $R_{63}$  is hydrogen, methyl, methoxy or fluorine,  $R_{64}$  is COOMe, fluorine or chlorine,  $R_{65}$  is hydrogen or methyl, Y is methine, C-F or nitrogen, Z is methine or nitrogen and  $R_{66}$  is fluorine or chlorine; and a compound of formula 2.7

wherein R₆₇ is hydrogen or -C(O)-S-n-octyl; and a compound of formula 2.8

wherein R₆₈ is either bromine or iodine; and a compound of formula 2.9

wherein  $R_{69}$  is chlorine or nitro; and a compound of formula 2.10

wherein  $R_{70}$  is fluorine or chlorine and  $R_{71}$  is -CH₂-CH(Cl)-COOCH₂CH₃ or -NH-SO₂Me; and a compound of formula 2.11

wherein  $R_{72}$  is trifluoromethyl or chlorine; and a compound of formula 2.12

Me 
$$\stackrel{\text{P}}{\underset{\text{O}}{\longrightarrow}}$$
 COOH (2.12),

wherein  $R_{73}$  is  $NH_2$  or  $<S>NH_2$ ; and a compound of formula 2.13

wherein  $Y_1$  is nitrogen, methine, NH-CHO or N-Me,  $Y_2$  is nitrogen, methine or C-I,  $Y_3$  is methine,  $Y_4$  is methine or  $Y_3$  and  $Y_4$  together are sulfur or C-CI,  $Y_5$  is nitrogen or methine,  $Y_6$  is methyl, difluoromethoxy, trifluoromethyl or methoxy,  $Y_7$  is methoxy or difluoromethoxy and  $R_{74}$  is CONMe₂, COOMe, COOC₂H₅, trifluoromethyl,  $CH_2$ - $CH_2$ CF₃ or  $SO_2$ CH₂CH₃, or a sodium salt thereof;

and the compound of formula 2.13.c

and the compound of formula 2.14

Me 
$$N-N$$
  $Me$   $N-N$   $Me$   $N-N$   $Me$   $N-H$   $N-H$ 

and the compound of formula 2.15

$$O_2N$$
  $CI$   $O_2N$   $O_2$   $O_2$   $O_3$   $O_4$   $O_4$   $O_5$   $O_5$ 

and the compound of formula 2.16

.... . . . . . . . .

and the compound of formula 2.17

and the compound of formula 2.18

Me 
$$N^{+}O^{-}$$

Me  $N^{+}O^{-}$ 
 $N^{+}O^{-}$ 

Me  $N^{+}O^{-}$ 

and the compound of formula 2.19

and the compound of formula 2.20

and the compound of formula 2.21

and the compound of formula 2.22

and the compound of formula 2.23

and the compound of formula 2.24

and the compound of formula 2.26

and the compound of formula 2.27

and the compound of formula 2.28

and the compound of formula 2.31

and the compound of formula 2.32

and the compound of formula 2.34  $H_2N - SO_2NHCO_2CH_3$  (2.34),

and the compound of formula 2.35 CH₃NH N (2.35),

and the compound of formula 2.36  $CH_3 \downarrow N O C(CH_3)_3$  (2.36),

and the compound of formula 2.37  $N = CO_2CH_3$  (2.37),  $CF_2H$ 

and the compound of formula 2.38  $CH_3SOC$   $CH_2CH(CH_3)_2$  (2.38),

and the compound of formula 2.39  $(CH_3)_2N + N + O$  (2.39),

and the compound of formula 2.40  $CI \longrightarrow NHCON(CH_3)_2$  (2.40),

and the compound of formula 2.41  $CI \longrightarrow OCH_2CO_2H$  (2.41),  $CH_3$ 

$$CI - CH_3$$
 $CH_3$ 
 $CH_3$ 
 $(2.42)$ ,

$$(CH_3)_3C \xrightarrow{S} NCONHCH_3$$
 $N-N$ 
(2.43),

and the compound of formula 2.43 and the compound of formula 2.44

and the compound of formula 2.45

$$H_3C$$
 $N$ 
 $N$ 
 $N$ 
 $N$ 
 $N$ 
 $N$ 
 $CH_3$ 
 $CH_3$ 
 $CH_3$ 

and the compound of formula 2.46

$$O$$
 $O$ 
 $O$ -isopropyl
 $CF_3$ 
 $O$ 
 $O$ 
 $O$ -isopropyl
 $O$ 
 $O$ -isopropyl
 $O$ 
 $O$ -isopropyl
 $O$ 
 $O$ -isopropyl
 $O$ 
 $O$ -isopropyl

and the compound of formula 2.49

and the compound of formula 2.50

$$H_3C$$
 $CH_3$ 
 $CH_3$ 
 $CH_3$ 
 $CH_3$ 
 $CH_3$ 
 $CH_3$ 
 $CH_3$ 
 $CH_3$ 
 $CH_3$ 
 $CH_3$ 

$$CI \xrightarrow{F} O \xrightarrow{CH_3} F$$

$$O \xrightarrow{N} F$$

$$CH_3$$

$$O \xrightarrow{CH_3} CH_3$$

$$O \xrightarrow{CH_3} CH_3$$

$$O \xrightarrow{CH_3} CH_3$$

# 2. A composition according to claim 1, wherein in formula I

each R is independently hydrogen,  $C_1$ - $C_6$ alkyl,  $C_2$ - $C_6$ alkenyl,  $C_2$ - $C_6$ haloalkenyl,  $C_2$ - $C_6$ alkynyl,  $C_2-C_6 haloalkynyl,\ C_3-C_6 cycloalkyl\ ,\ C_1-C_6 alkoxy,\ C_1-C_6 haloalkoxy,\ C_1-C_6 alkyl-C_6 haloalkynyl,\ C_2-C_6 haloalkynyl,\ C_3-C_6 cycloalkyl-C_6 cycloalkyl-C_6 haloalkynyl,\ C_3-C_6 cycloalkyl-C_6 cyclo$ sulfinyl,  $C_1$ - $C_6$ alkylsulfonyl,  $C_1$ - $C_6$ haloalkyl,  $C_1$ - $C_6$ haloalkylthio,  $C_1$ - $C_6$ haloalkylsulfinyl,  $C_1$ - $C_6$ haloalkylsulfonyl,  $C_1$ - $C_6$ alkoxycarbonyl,  $C_1$ - $C_6$ alkylcarbonyl,  $C_1$ - $C_6$ alkylonyl,  $C_1$ - $C_6$ alky amino, C₁-C₆alkylaminosulfonyl, di(C₁-C₆alkyl)aminosulfonyl, -N(R₁)-S-R₂, -N(R₃)-SO-R₄, -N(R₅)-SO₂-R₆, nitro, cyano, halogen, hydroxy, amino, benzylthio, benzylsulfinyl, benzylsulfonyl, phenyl, phenoxy, phenylthio, phenylsulfinyl or phenylsulfonyl; wherein the phenyl group may itself be mono-, di- or tri-substituted by C₁-C₆alkyl, C₁-C₆haloalkyl, C₃-C₆alkenyl,  $C_3$ - $C_6$ haloalkenyl,  $C_3$ - $C_6$ alkynyl,  $C_3$ - $C_6$ haloalkynyl,  $C_1$ - $C_6$ alkoxy,  $C_1$ - $C_6$ haloalkoxy,  $C_3$ - $C_6$ alkenyloxy, C₃-C₆alkynyloxy, mercapto, C₁-C₆alkylthio, C₁-C₆haloalkylthio, C₃-C₆alkenylthio,  $C_3$ - $C_6$ haloalkenylthio,  $C_3$ - $C_6$ alkynylthio,  $C_2$ - $C_5$ alkoxyalkylthio,  $C_3$ - $C_5$ acetylalkylthio,  $C_3$ - $C_6$ alkoxycarbonylalkylthio,  $C_2$ - $C_4$ cyanoalkylthio,  $C_1$ - $C_6$ alkylsulfinyl,  $C_1$ - $C_6$ haloalkylsulfinyl, C₁-C₆alkylsulfonyl, C₁-C₆haloalkylsulfonyl, aminosulfonyl, C₁-C₂alkylaminosulfonyl,  $C_2$ - $C_4$ dialkylaminosulfonyl,  $C_1$ - $C_3$ alkylene- $R_{45}$ ,  $NR_{46}R_{47}$ , halogen, cyano, nitro, phenyl or by benzylthio, wherein the latter phenyl and benzylthio groups may themselves be substituted on the phenyl ring by  $C_1$ - $C_3$ alkyl,  $C_1$ - $C_3$ haloalkyl,  $C_1$ - $C_3$ alkoxy,  $C_1$ - $C_3$ haloalkoxy, halogen, cyano or by nitro:

or each R is independently a monocyclic or fused bicyclic ring system having from 5 to 10 members, which may be aromatic or partially saturated and may contain from 1 to 4 hetero atoms selected from nitrogen, oxygen and sulfur; wherein the ring system either is bound directly to the pyridine ring or is bound to the pyridine ring *via* a C₁-C₄alkylene group, and each ring system may not contain more than two oxygen atoms and may not contain more than two sulfur atoms, and the ring system may itself be mono-, di- or tri-substituted by C₁-C₆alkyl, C₁-C₆haloalkyl, C₃-C₆alkenyl, C₃-C₆haloalkenyl, C₃-C₆alkynyl, C₃-C₆alkynyl, C₃-C₆alkynyl, C₁-C₆alkylthio,

 $C_1$ - $C_6$ haloalkylthio,  $C_3$ - $C_6$ alkenylthio,  $C_3$ - $C_6$ haloalkenylthio,  $C_3$ - $C_6$ alkynylthio,  $C_2$ - $C_5$ alkoxy-alkylthio,  $C_3$ - $C_5$ acetylalkylthio,  $C_3$ - $C_6$ alkoxycarbonylalkylthio,  $C_2$ - $C_4$ cyanoalkylthio,  $C_1$ - $C_6$ alkylsulfinyl,  $C_1$ - $C_6$ haloalkylsulfinyl,  $C_1$ - $C_6$ haloalkylsulfinyl, aminosulfonyl,  $C_1$ - $C_6$ haloalkylsulfonyl, aminosulfonyl,  $C_1$ - $C_2$ alkylaminosulfonyl,  $C_2$ - $C_4$ dialkylaminosulfonyl,  $C_1$ - $C_3$ alkylene- $C_3$ ,  $C_4$ 0, halogen, cyano, nitro, phenyl or by benzylthio, wherein phenyl and benzylthio may themselves be substituted on the phenyl ring by  $C_1$ - $C_3$ alkyl,  $C_1$ - $C_3$ haloalkyl,  $C_1$ - $C_3$ alkoxy,  $C_1$ - $C_3$ haloalkoxy, halogen, cyano or by nitro, and wherein the substituents on the nitrogen in the heterocyclic ring are other than halogen.

3. A composition according to claim 1, that comprises, as compound of formula I, a compound of formula Ia

wherein

R₄₈ is C₁-C₆alkyl, C₂-C₆alkenyl, C₂-C₆haloalkenyl, C₂-C₆alkynyl, C₂-C₆haloalkynyl, C₃-C₆cycloalkyl, C₁-C₆haloalkyl, or a monocyclic or fused bicyclic ring system having from 5 to 10 members, which may be aromatic or partially saturated and may contain from 1 to 4 hetero atoms selected from nitrogen, oxygen and sulfur, wherein the ring system either is bound directly to the pyridine ring or is bound to the pyridine ring via a C₁-C₄alkylene group, and each ring system may not contain more than two oxygen atoms and may not contain more than two sulfur atoms, and the ring system may itself be mono-, di- or tri-substituted by  $C_1$ - $C_6$ alkyl,  $C_1$ - $C_6$ haloalkyl,  $C_3$ - $C_6$ alkenyl,  $C_3$ - $C_6$ haloalkenyl,  $C_3$ - $C_6$ alkynyl,  $C_3$ - $C_6$ haloalkynyl, C₁-C₆alkoxy, C₁-C₆haloalkoxy, C₃-C₆alkenyloxy, C₃-C₆alkynyloxy, mercapto, C₁-C₆alkylthio, C₁-C₆haloalkylthio, C₃-C₆alkenylthio, C₃-C₆haloalkenylthio, C₃-C₆alkynylthio, C₂-C₅alkoxyalkylthio,  $C_3$ - $C_5$ acetylalkylthio,  $C_3$ - $C_6$ alkoxycarbonylalkylthio,  $C_2$ - $C_4$ cyanoalkylthio,  $C_1$ - $C_6$ alkylsulfinyl, C₁-C₆haloalkylsulfinyl, C₁-C₆alkylsulfonyl, C₁-C₆haloalkylsulfonyl, aminosulfonyl, C₁-C₂alkylaminosulfonyl, C₂-C₄dialkylaminosulfonyl, C₁-C₃alkylene-R₇, NR₈R₉, halogen, cyano, nitro, phenyl or by benzylthio, wherein phenyl and benzylthio may themselves be substituted on the phenyl ring by  $C_1$ - $C_3$ alkyl,  $C_1$ - $C_3$ haloalkyl,  $C_1$ - $C_3$ alkoxy,  $C_1$ - $C_3$ haloalkoxy, halogen, cyano or by nitro, and wherein the substituents on the nitrogen in the heterocyclic ring are other than halogen;

 $R_{49}$  is hydrogen,  $C_1$ - $C_6$ alkyl,  $C_1$ - $C_6$ haloalkyl, halogen, or phenyl which may be substituted by  $C_1$ - $C_3$ alkyl,  $C_1$ - $C_3$ haloalkyl,  $C_1$ - $C_3$ alkoxy,  $C_1$ - $C_3$ haloalkoxy, halogen, cyano or by nitro, and  $R_{50}$  is  $C_1$ - $C_6$ haloalkyl.

- 4. A composition according to claim 3, wherein  $R_{48}$  is  $C_1$ - $C_6$ alkyl,  $C_2$ - $C_6$ alkenyl,  $C_2$ - $C_6$ haloalkynyl,  $C_3$ - $C_6$ cycloalkyl or  $C_1$ - $C_6$ haloalkyl.
- 5. A composition according to claim 1, wherein in formula I Q is the group Q2 or Q3.
- 6. A composition according to claim 5, wherein in the group  $Q_2$   $R_{23}$  is hydroxy.
- 7. A composition according to claim 5, wherein in the group  $Q_3$   $R_{40}$  is hydroxy.
- 8. A method of controlling undesired plant growth in crops of useful plants, which comprises allowing a herbicidally effective amount of a composition according to claim 1 to act on the crop plant or the locus thereof.
- 9. A method according to claim 8, wherein the crop plant is maize or sugar cane.
- 10. A method according to claim 8, wherein the crops of useful plants are treated with the mentioned composition at rates of application corresponding to a total amount of active ingredient of from 1 to 5000 g per hectare.
- 11. A herbicidally selective composition that, in addition to comprising customary inert formulation adjuvants, such as carriers, solvents and wetting agents, comprises as active ingredient a mixture of
- a) a herbicidally-synergistically effective amount of a compound of formula I according to claim 1 and one or more compounds selected from the compounds of formulae 2.1 to 2.51 according to claim 1 and
- b) a herbicidally-antagonistically effective amount of a compound selected from the compound of formula 3.1

and the compound of formula 3.3

and the compound of formula 3.4

and the compound of formula 3.5

#### and the compound of formula 3.8

and of formula 3.9

Cl₂CHCON(CH₂CH=CH₂)₂ (3.9),

# and of formula 3.10

# and of formula 3.13

#### and of formula 3.14

- 12. A method for the selective control of weeds and grasses in crops of useful plants, which comprises treating the useful plants, seeds or cuttings thereof, or the area of cultivation thereof, with a herbicidally-synergistically effective amount of a composition according to claim 10.
- 13. A method according to claim 12, wherein the rate of application of herbicides is from 1 to 5000 g/ha and the rate of application of safener is from 0.001 to 0.5 kg/ha.
- 14. A method according to claim 12, wherein the crops of useful plants are maize or sugar cane.
- 15. A herbicidally selective composition that, in addition to comprising customary inert formulation adjuvants, such as carriers, solvents and wetting agents, comprises as active ingredient a mixture of
- a) a herbicidally effective amount of a compound of formula I according to claim 1 and b) a herbicidally-antagonistically effective amount of a compound selected from the compound of formula 3.1

and the compound of formula 3.3

and the compound of formula 3.4

$$CI \longrightarrow \begin{array}{c} CI \text{ Me } COOCH_2CH_3 \\ \\ N \\ COOCH_2CH_3 \end{array} \tag{3.4),}$$

and the compound of formula 3.5

and the compound of formula 3.8

and of formula 3.9

 $Cl_2CHCON(CH_2CH=CH_2)_2$  (3.9),

and of formula 3.10

#### and of formula 3.13

#### and of formula 3.14

16. A method for the selective control of weeds and grasses in crops of useful plants, which comprises treating the useful plants, seeds or cuttings thereof, or the area of cultivation thereof, with a herbicidally-synergistically effective amount of a composition according to claim 14.